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# THE UNIVERSITY OF ALBERTA

# TEACHER IDENTIFICATION OF SPECIFIC READING DISABLED CHILDREN

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

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DEGREE OF DOCTOR OF PHILOSOPHY

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## ABSTRACT

In this study the author investigated the accuracy with which grade four, five and six teachers identify specific reading disabled students. Three problems were investigated, the first being an examination of the relationships between the teacher characteristics of number of university courses in reading, number of university courses in special education, years of teaching, and the teacher's use of various student characteristics in identifying a student as specific reading disabled. Student characteristics included a significant reading retardation with at least average intellectual ability, economic level of family, and physical behavior. A second problem examined the accuracy of regular classroom teachers in identifying specific reading disabled children when a definition is supplied. A final problem investigated the likelihood of reading program changes for students identified as specific reading disabled.

The sample of 18 teachers and 452 students was selected, using a stratified random sampling procedure, from the grades four, five and six population of two rural southern Alberta school districts. The sample was stratified according to grade with six teachers and their students being selected at each of the three grade levels.

Chi square tests showed no significant association at the .05 level of confidence between any of the teacher variables and the three student characteristics. The criterion of significant reading retard-

ation with at least average intellectual ability was employed by three of the eighteen teachers in identifying specific reading disabled cases. Four teachers used the economic level of a child's family as an identifying factor while six teachers considered a child's physical behavior when identifying specific reading disabled pupils.

Only one significant association was found when teacher variables were compared with accuracy of teacher identification of specific reading disability cases using the study's definition. A significant relationship was discovered between teacher training in special education and the ability to identify specific reading disability cases.

Reading program alterations showed a significant relationship with grade level. Of the students identified as specific reading disabled, 80 per cent of the grade four students were in a modified reading program, compared to 68 per cent and 42 per cent at grades five and six respectively.

From the results of the study, it was suggested that there is a need for teacher in-service programs that would focus on the characteristics and the identification of specific reading disabled students. More research seems to be needed to investigate the relationship between reading program modification and the percentage of actual reading disability cases at the upper elementary level.

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# CHAPTER I

# THE PROBLEM

## INTRODUCTION

Reading, the foundation of the world of literacy, is a basic tool for school success. In reading, one is receiving communication, making discriminative responses to graphic symbols and acquiring meaning from the printed page (Gibson, 1966). But for some children these skills do not develop or do not develop easily. Children that are of good intelligence from stable environments fail to master the skills of reading and without these skills failure in school per se is imminent, for, "reading is so interrelated with the total educational process that educational success requires successful reading" (Smith and Dechant, 1961, p. 6).

For most of the school population the sequence of development in communication, and particularly in reading, proceeds without hindrance. However, in spite of seemingly well-structured programs and a variety of approaches, there appears to be a segment of the population who are unable to progress as well as their peers. Using the fourth grade level as a criterion, it is estimated that the illiteracy rate in Canada is in the vicinity of ten per cent. However, a fourth grade level is hardly adequate for reading success in the western culture. When the ability to read fluently is considered, estimates as high as thirty per cent are given for those with reading difficulties in this culture (Tarnopol, 1969). This thirty per cent includes those

children from stable environments with average or better ability, who have difficulties in acquiring the skills of reading. While it is difficult to identify the number of children that fall within this category, estimates run as high as ten per cent of the school population. Critchley (1970a, p. 96) states that "cases are constantly being overlooked by teachers and misinterpreted by educational psychologists and sometimes even by child psychiatrists," and, therefore, suggests that the percentage of disabled readers is likely higher than ten per cent. Tarnopol and Tarnopol (1976, p. 2) note "that reading problems in nonretarded children are now acknowledged worldwide." Hallgren (1950) judged the incidence in Sweden of specific dyslexia within the normal population as roughly ten per cent. As well, Hermann (1959) and Rabinovitch et al. (1954) report results similar to Hallgren, while Bender (1957) believes that between five per cent and fifteen per cent of all school children are unable to acquire reading skills as quickly as youngsters with comparable mental ability.

While reading disability as a component of the more generic term "learning disability" has been identified in the literature for many decades, in Alberta it has been only in the last few years that the Provincial Government has made funds available to directly assist specific reading disabled children. Initially (1973-74), a grant of ten dollars per child was available to school boards to develop programs for the learning disabled. For the present year (1980-81), the grant has been increased to nineteen dollars and fifty cents per child. This

grant is to be used for the diagnosis and remediation of specific learning disabilities.

The initial referral of children for special help depends on the ability of classroom teachers to accurately identify the target population. It would seem relevant to conduct a study of the accuracy of teachers in identifying children who are selected for specialized assistance and to determine whether or not selection has an influence on a student's reading program.

## PURPOSE OF THE STUDY

This study was designed to examine the accuracy with which teachers identified specific reading disabled students. The purpose was to compare teacher characteristics of training and experience with success in identifying the specific reading disabled students within the teacher's own classroom.

The following research questions were formulated in an attempt to meet the purpose set for the study:

1. Do the criteria that teachers use in identifying "specific reading disability" cases relate to specific teacher variables?
2. Using the operational definition of this study for "specific reading disability," how effective are regular classroom reading teachers in identifying the specific reading disabled child?
3. How are school reading programs altered for those students

identified as "specific reading disabled"?

To realize the purpose of this study, data in the form of reading and intelligence test results and from teacher interviews were collected.

## SIGNIFICANCE OF THE STUDY

From 1971 to 1975 the number of special education teacher positions that qualified for Special Education Teacher grants from Alberta Education increased by 114 per cent. As well, under a second special grant known as Education Opportunity Fund, each school board in the province has been eligible for an additional grant of twenty-nine dollars and seventy cents per elementary school child (1980-81) for the improvement of basic skills. Thus, the Government of the Province of Alberta has made available large amounts of funding to help the moderately handicapped pupil. One of the moderately handicapped groups of pupils identified as eligible for assistance during this period was the group which included the learning disabled child, notably the child with a specific reading disability. While estimates of the per cent of elementary children with specific reading disability vary between 3 and 20 per cent, a commonly accepted percentage is 10 per cent. Hundreds of thousands of dollars have been spent in Alberta in the last five years to identify specific reading disabled children and to assist teachers in developing programs for the specific reading disabled group. However, little appears to have been done in regard to investigating the accuracy with which students

are selected for specialized reading programs. This Researcher did not find a study related to teacher ability to identify specific reading disabled children.

The results of this study should provide information for educators regarding teacher characteristics that relate to accurate identification of specific reading disabled students. This should provide some research base for making decisions relative to development of teacher programs and supplementary resources necessary to increased accuracy in identification of the specific reading disabled student.

Results of the investigation of changes in a child's reading program after being identified as specific reading disabled will indicate the importance of accurate identification.

## DEFINITION OF TERMS

### Specific Reading Disability

Since the study was based on an operational definition for the identification of the exceptional child with reading difficulties, a number of standard terms were reviewed. Through the review, the phrase "specific reading disability" was selected as being the most appropriate label.

When discussing children with reading problems a word commonly employed is "dyslexia." By definition, dyslexia refers specifically to a defect in reading, but it is not an all-inclusive term. The term, dyslexia, carries an implication about the cause of reading

failure. It assumes a mental problem that blocks the development of reading (Benton, 1975). Zigmond (1969) and Stauffer, Abrams and Pikulski (1978) define dyslexia as a reading problem due to primary brain dysfunction. To diagnose a child as dyslexic, Spraings (1969) states that three criteria must be met:

1. A child is at least seven years of age or is at the end of the first grade.
2. There has been a thorough assessment of the child's intellectual functioning to determine as accurately as possible his present level of functioning and to predict with some degree of accuracy his potential.
3. Perceptual functioning at all levels has been explored so that the possibility of a perceptual disability precluding reading can be eliminated (p. 239).

Dyslexia has been described as symbol blindness. Love (1970) states that symbol blindness or dyslexia are terms referring to a small percentage of children suffering from reading disabilities. "These are the children who are two-and-a-half to three years below grade placement but still are intellectually normal" (Love, 1970, p. 9).

Herman (1959, cited in Francis-Williams, 1970) described congenital word blindness as

> a defective capacity for acquiring at the normal time a proficiency in reading and writing corresponding to average performance; the deficiency is dependent on constitutional factors (heredity), is often accompanied by difficulties with other symbols (numbers, musical notation, etc.), it exists in the absence of intellectual defect or of defects of the sense organs which might retard the normal accomplishment of these skills and in the absence of past or present appreciable inhibitory influences in the internal and external environments (p. 14).

Thus the terms dyslexia and word blindness appear to be synon-

ymous for the same basic characteristics. Both terms focus on the difficulties some children have in the retention of shapes and sounds with the intent "...that these difficulties should be treated in their own right, not as symptoms of underlying emotional disturbance" (Miles, 1970, p. 11). "However dyslexia is a term derived from the field of neurology and should be reserved for children of normal intelligence, with no significant emotional problems, who do not read because of neurologic dysfunction" (Anderson, 1970, p. 8). While normal intelligence and emotional behaviour are reasonably easy to substantiate, neurologic dysfunction is often not positively identified, and in any case, is outside the expertise of the educator to establish. Since it is the educator that is most likely to be the professional that will be working with the majority of children with reading disorders, a definition that is operational within the educator's frame of reference is needed (Carter and McGinnis, 1970).

Leppmann (1968, p. 12) refers to Eisenberg (1966) and Morgan (1896) when he uses the term "specific reading disability" and states that the disability is "also known as congenital word blindness, primary reading retardation and development dyslexia." Leppmann goes on to state that the "...adjective specifically calls attention both to the circumscribed nature of the disability and to our ignorance of its causes." Specific reading disability is then defined as a failure to learn to read with normal proficiency despite normal instruction, average or better intelligence, "stable home life and proper motiva-

tion."

Before acceptance of a term to identify these children, some consideration needs to be given to the term "minimal brain damage." Clements (1966) identifies minimal brain dysfunction as a diagnostic descriptive category which refers to children of normal intelligence with learning difficulties which are associated with subtle dysfunction of the central nervous system. Anderson (1970) emphasizes that the learning disability is an end product of the minimal brain dysfunction. Clements (1966) gives the following definition from The National Project (U.S.A.) which states the term "minimal brain dysfunction"

> ...refers to children of near average, average, or above average general intelligence with certain learning and/or behavioral disabilities ranging from mild to severe, which are associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in perception, conceptualization, language, memory, and control of attention, impulse, or motor function (p. 9-10).

The term, minimal brain dysfunction, seems to focus on the one criterion of the definition of dyslexia that is most difficult to validate, neurological impairment. Furthermore, the term has a connotation that is alarming to many people, including parents. It imparts a hopelessness that may excuse the implementing of proper teaching techniques and may cause parents to expect less for their child than is educationally desirable. Thus, such terms as "dyslexia," "word blindness," and "minimal brain damage" appear inappropriate for educational use, due either to the difficulty of validating identifi-

cation of such children or to the lack of sufficient stress on the problem itself, reading disability.

Considering the above discussion, it may well be that the best term to identify these exceptional children is "specific reading disability," with "specific" being used to denote a disability of undetermined cause in a child of normal intelligence. "Reading" might be identified as the purposeful process of identifying, interpreting, and evaluating print in terms of the mental content of the reader (Carter and McGinnis, 1970). "Disability" refers to the discrepancy between a person's reading achievement and his potential. Valett (1970) states that a discrepancy between classroom reading achievement and mental age of one or more years is cause for concern, while Carter and McGinnis (1970) report that children are reading retarded if they are two or more years below grade placement. Roswell and Natchez (1964) give a less specific definition by saying that a child has a reading difficulty when he cannot cope with schoolwork because he cannot read successfully.

In summary, the term felt to be most suitable in identifying these exceptional children and the one used in this study is "specific reading disability," which is used to describe all cases in which there is a discrepancy of two or more years between grade level and reading achievement in favour of grade level, which is not the result of environment or noted physical or mental defects, including below average intelligence.

Reading Teacher

A person who holds a valid Alberta Professional Teaching Certificate and is responsible for the teaching of the core reading program for his/her assigned grade.

Intelligence

The composite intelligence score received by a student on the appropriate form of the Canadian Lorge-Thorndike Intelligence Tests, verbal and non-verbal battery, or the full scale score of the Wechsler Intelligence Scale for Children - Revised.

## DELIMITATIONS OF THE STUDY

The reading teachers and their students for this study were selected from grades four, five and six classrooms of the County of Lethbridge No. 26 and the Pincher Creek School Division No. 29. Six classrooms were randomly selected at each of the three grade levels. Multi-grade classrooms were not included in the sample. Where a reading teacher taught more than one class, only the home-room class formed part of this study. Therefore, results of this study apply to those students of the grades four, five and six populations of the County of Lethbridge No. 26 and the Pincher Creek School Division No. 29.

## ORGANIZATION OF THE THESIS

Chapter II reviews the literature relative to student characteristics and reading disability, teacher identification and student classroom behavior, and student program changes and reading gains.

The design of the study is discussed in Chapter III, the results of which are presented and discussed in the fourth chapter. The final chapter contains a summary of the investigation.

## CHAPTER II

## REVIEW OF THE LITERATURE

This review concerns three general topics: (1) Characteristics of the specific reading disabled student; (2) Teacher identification of specific reading disabled students and related classroom behaviors; and (3) Short and long term gains related to program changes of specific reading disabled students.

### CHARACTERISTICS OF THE SPECIFIC READING DISABLED (SRD) STUDENT

A search of the literature identified many studies indicating that certain characteristics seem to be exhibited by specific reading disabled (SRD) children more often than would normally be expected. Since studies are numerous, this section of the review will rely heavily on summary data collected and analyzed by authors in the field.

Referring to SRD children with severe reading lag, a severe reading lag being defined as virtually a non-reader, Orton (1957, cited in Schiffman, 1962) suggested that the following characteristics were common with SRD children:

1. They show great difficulty in remembering whole word patterns and do not learn easily by the "sight method".
2. They are poor oral readers and fundamentally poor spellers.
3. They usually come from families in which there is left-handedness or language disorder, or both.
4. In their early attempts at reading or writing they show marked confusions in remembering the orientation of letters (b, c, p, q) and the order of letters in words or numbers in sequences (was-saw, on-no, felt-left,

12-21). They are sometimes called mirror-minded or mirror readers.

5. They usually show some evidence of delayed or incomplete establishment of one-sided motor preferences (unilateral cerebral dominance). They tend to be left-handed, ambidextrous, or mixed in their motor choices, e.g., right-handed and left-eyed, or they may have been slow in the establishment of their handedness.
6. They often show delays or defect in more than one language area. In addition to poor reading, they may have delayed or imperfect speech; or clumsiness in handwriting or in other motor acts (p. 47).

Spraings (1969) added visual hyperactivity, especially in older subjects, to the list. Visual hyperactivity was defined as random movement of the eyes in the reading process. She also identified visual and/or auditory memory problems as a characteristic of the SRD. Spraings concurred with Orton (1937) on the right-left discrimination as being a proven symptom as did Burt (1961), Vernon (1957) and Monroe (1932, cited in Zangwill, 1962). Yet opinion differs as regards both the evidence and the significance of different characteristics and, in the case of atypical laterality, some investigators (Hallgren, 1950; Hermann, 1959) have denied that there is any correlation between the symptom and reading lag. Belmont and Birch (1973) state that while mixed dominance has been associated with specific learning disorders, there is research that suggests that the problem is not mixed dominance but a confusion in directionability, or right-left discrimination. This controversy of opinion should be kept in mind when examining any of the data related to the characteristics of the SRD. Reading lag can be associated with a large

number of symptoms (Vernon, 1957). However, Francis-Williams (1970) states, and Bryan (1974b) concurs, that SRD is not characterized by peripheral visual defect, peripheral auditory defect, or visuo-spatial disability. They do indicate that boys seem to exhibit a higher incidence of SRD. Spraings (1969, p. 250) agrees, stating that SRD is "rare in girls. Perhaps four or five times as many boys than girls (are) affected." Zintz (1977) states that learning disability affects boys rather than girls in a ratio of approximately 4:1.

In identifying the characteristics of SRD children it is appropriate to focus on the reading behavior itself. A number of characteristics can be identified that illustrate the behavior that outlines the severity of the problem for the SRD child. In the early stages of reading, the child tends to look randomly back and forth at a word, with apparent inability to perceive and remember small details or to realize which details are important to the basic structure of the word (Vernon, 1957). While such random action is common with many children in the early stages of reading, the SRD child continues the practice long after the normal child has developed systematic word attack skills. As the child develops some oral reading skills, the reading is often "...choppy, with no regard for punctuation, resulting in a monotone effect... Words are reversed, letters are inverted, and visual-sequential-memory problems are common" (Anderson, 1970, p. 9). Orton (1937) observed that many children with SRD have a tendency to reverse letters when reading and writing.

Critchley (1970a) and Saunders (1962) also cited reversals, both individual letters and whole word, as a common characteristic of SRD children. While the role of reversals in the attempt to read has often been played down (Moyer and Newcomer, 1977; Cohn and Striker, 1979), for many normal children perpetrate reversals at some time, Money (1972) states that the SRD child is conspicuous in making so many of them and for so long a period of time. Benton's (1959) research confirmed this view when he found that the mean score of the "systematic reversal" children was more than a year below that of the control group.

As well, many SRD children find difficulty in keeping to the line when endeavouring to read. "The eye may slip down and identify words here and there in an irregular, uncoordinated fashion. They may experience special difficulty in switching their gaze from the end of the line to the beginning of the next" (Critchley, 1970b, p. 12).

In continuing his review, Critchley (1970a) summarized the reading faults of SRD children in eighteen points:

1. An inability to pronounce an unfamiliar word with a tendency to guess wildly at its phonetic structure.
2. A failure to realize the differences between words which are somewhat similar in spelling or in sound, e.g. PUG-BUD, ON-NO.
3. A failure to detect the differences in the auditory properties of words or letters.
4. Difficulty in keeping track of the correct place while reading.
5. Perplexity in switching accurately from the right hand extremity of one line of print to the beginning of the next line on the left.
6. Lip movements and subdued vocalizing of sounds

while attempting to read silently.

7. Failure to read with complete understanding (as checked by such tests as the Monroe silent reading examination).
8. Incorrect pronunciation of vowels, e.g. BAG for BIG.
9. Incorrect pronunciation of consonants, e.g. BOLD for BOLT.
10. Rotations of letters, which constitute a most important type of error, and may entail mirror-opposite letters (according to the typology employed) e.g. did and bid, or dad and bab. Or whole words may be reversed, so that the child may read WAS instead of SAW. Or again short sequences or words may be read in a wrong order, as in the case of "DID HE" for "HE DID".
11. Inappropriate phonemes may be interpolated, as when the child reads TRICK instead of TICK.
12. Phonemes may be dropped from out of a consonantal cluster. Thus the child may read TICK instead of TRICK. Or whole syllables may be omitted, as when the child reads WALK for WALKING.
13. An error of quite a different type is seen whenever the child substitutes one word for another, e.g. WAS for LIVED; THE for AN; THIS, for THAT; HERE for THERE; and HIS for HER. The word may be one which is approximate in meaning, or one which is metonymous.
14. Words may be repeated in a perseveratory fashion, e.g. THE CAT THE CAT.
15. Words, inappropriate or otherwise, may be added, e.g. "ONCE UPON A TIME THERE WAS" may be read instead of "ONCE THERE WAS".
16. One or more words may be omitted altogether, e.g. "A DOG", instead of "A FIERCE DOG".
17. An omission of a different sort is seen in the phenomenon described by Monroe as a "refusal". "MOST INTERESTING" may say "ONE OF THE MOST ____".
18. Faulty placement of stress in polysyllabic words is common in those dyslexics whose reading is comparatively advanced. It may well show in such long and perhaps unfamiliar words as "MISCELLANEOUS", "INORDINATE", "AUTHORITATIVE", (p. 29).

Carter and McGinnis (1970) report that disabled readers show

many of the following characteristics:

- Inability to identify words.
- Inability to interpret words in terms of ideas.
- Guessing and bluffing in reading situations.
- Alphabet confusion.
- Limited rate of reading.
- Inability to identify main ideas.
- Failure to enjoy reading activities.
- Inadequate means of attacking unknown words.
- Manifestation of emotional reactions in reading situations.
- Comparatively low independent-reading level.
- Lack of interest in books.
- Infrequent use of the library (p. 22).

Certainly a number of characteristics listed describe what poor reading is, i.e.: inability to identify words, while other characteristics, i.e. infrequent use of the library, are likely a result of the primary difficulty, the inability to read fluently.

One fact does emerge from the discussion of the characteristics of the SRD child and that is that there is no one entity (Smith, 1968). Combinations of learning problems are as numerous as the children who evidence them. All the evidence points to the conclusion that SRD is a complex problem requiring careful diagnosis and likely needing individual remedial assistance in developing reading skills (Tarnopol, 1969).

However, the prevalence of some of the characteristics suggest that their attributes require serious consideration; therefore, the remainder of this section will examine a number of selected characteristics in detail.

Sex Ratio

A higher rate of boys with SRD is one characteristic that research has continually validated. Critchley (1964) reports that the male:female ratio generally exceeds four to one. Swearengen (1966) states that numerous studies confirm the higher incidence of SRD boys and cited the following cases in support of this belief:

> Alden, Sullivan, and Durrell (1941), in a study of 6,364 children from the second to the sixth grades, found 18 per cent of the boys and 9 per cent of the girls retarded in reading. Monroe (1932) noted that 86 per cent of her reading disability cases were boys. Durrell (1940) reported that among educational clinic cases, the ratio of boys to girls was ten to one. He also found that when children were equated on oral language achievement, there were still twice as many reading disability cases among boys as among girls (p. 24).

In 1961, Arthur Gates analyzed the reading test scores of 6,646 boys and 6,468 girls in grades 2 through 8. The children in the study were approximately average in intelligence and scholastic aptitude. The results showed significantly higher reading scores for the girls than the boys at all grade levels. The boys outnumbered the girls in the lowest scores by 2 to 1 in Grades 3 and 4 and by decreasing proportions thereafter. Gates postulated that the poorer showing of the boys on the tests indicated more girls than boys pursue life situations in which there were greater opportunities, incentives and respect for reading.

Asher and Gottman (1973) stated that grade five boys lag behind girls as much as one half year on reading achievement tests, while

Blom (1971, cited in Asher and Markell, 1974) says that between 60 per cent and 90 per cent of elementary school children referred for assistance in reading are boys.

Laterality

While the writers of some recent books on reading disability have questioned the significance of lateral dominance for reading (Lerner, 1976; Spache 1976) research interest in lateral dominance continues. Harris (1979, p. 338) states that "...eighty-eight papers on some aspect of the relationship between lateral dominance and reading were noted in Psychological Abstracts between 1968 and 1977."

Some authors have suggested that left-handedness correlates with reading disability. Critchley (1970a) summarized his findings thus:

> Sinistrality was observed in 75% of the cases recorded by Roudinesco, Trelat and Trelat; and in 29% of Dearborn's series. Wall (1945, 1946) found that 29% of his dyslexics were left-handers as opposed to 14% in a control series. Of Kagen's cases, 15% were left-handed, as compared with 4% among controls. Many other writers, however, could not satisfy themselves that there was a greater incidence of left-handedness among the community of poor readers (Monroe, Eames, Gates, Gates and Bond, Witty and Kopel, Bennet, Jackson, Hallgren). Others attached less importance to the role of left-handedness than to left-eyedness, a feature which was found in 27% of Skydsgaard's (as opposed to 21% in his controls); 40% in Kagen's series (32% in controls); and 100% in Macmeeken's 383 patients. Of the last-named group only 4 were left-handed. Monroe, Dearborn and Crosland also found a higher incidence of left-eyed subjects among poor readers (p. 35).

Critchley concluded that dyslexics were not more often left-handed than normal readers, although he believes that mixed laterality with reading disabled children may be a significant problem.

Using the Harris Tests of Lateral Dominance, Harris (1970) compared the performance of children with reading disability with unselected school children. At the age of seven, 38 per cent of the reading disability cases were confused in their knowledge of left and right while only 5 per cent of the school population showed confusion. By age nine years, the performance of the disability cases had improved to the level of the general population. Harris (1970, p. 238) concluded that "...nearly all normal children are able to identify the sides of their bodies as left and right by the age of seven, while this ability develops between the ages of seven and nine in about one-third of the reading disability cases."

Silver (1961, cited in Tarnopol, 1969, p. 14) conducted a diagnostic study of 150 children with reading disabilities and a control group of 30 children from the same population. The experimental group, ranging in age from 8.6 years to 14 years, had been referred for behavior problems. "Ninety-two per cent of these children were found to have right-left disorientation." However, the control, which also had behavior problems, but was not reading disabled, exhibited the same percentage of mixed dominance. Thus, it was not clearly demonstrated that mixed dominance is an important factor in SRD. "Fernald adds that many good readers have mixed dominance" (cited in

Carter and McGinnis, 1970, p. 55). Carter and McGinnis (1970, p. 55) say that "several theories of dominance have been set forth to explain reading disabilities. None of them has been proved." Robbins (1966, cited in Stauffer, Abrams and Pukuliski, 1978) suggested that the evidence supports the belief that crossed dominance does not result in reading disability.

Lerner (1976, p. 64) states, "recent research suggests that there is no difference in reading ability between established and non-established laterality groups of public school children, and many research studies in reading conclude that the determination of laterality has dubious practical value as part of a reading diagnosis." This conclusion was suggested by Spache (1968, p. 284) when he stated, "The tangential studies of the inter-relatedness of reading, (eye-preference) cerebral dominance, and the like are gradually disappearing under the weight of accumulated research which indicates that these areas do not yield significant findings for reading instruction."

In 1976 Spache took a stronger stand when he stated "Every part of this role of laterality and cerebral dominance is untenable..." (p. 197).

A conclusion from the research seems to be well stated by Benton (1959) when he states:

> The concept that a disturbance of the body schema is a primary determinant of the reading disability does not seem to be warranted from consideration of the available

> data. Of course, this does not exclude the possibility that within the broad category of children with reading disability, there may be a special group characterized by confusion in handedness, impaired right-left discrimination, and other evidence of body-schema disturbance and neurologic abnormality and whose reading disability may reasonably be interpreted as the resultant of a global neurologic maldevelopment (p. 57).

Visual Acuity and Perception

Leppmann (1968) cited a series of studies connecting deficits in visual perception to SRD. He states:

> Galifret-Granjon (1952, 1951) found that 100 backward readers differed significantly from 100 normal readers in their ability to perceive and reproduce details correctly, proper orientation of the axes of figures, and position of elements on part of the Bender Visual Motor Gestalt Test. The youngest group of children showed the most marked differences. Among these 7-10 year olds, 27% of the normal readers showed good performances; in the 10-12 year old group, 89% of the normal readers continued to be inferior in their performance on this task; there may have been an important developmental variable which influenced the results, possibly independent of the major variable under investigation (p. 18).

Leppmann (1968), continuing his search of the literature, reported that:

> Eames (1935) reported 63% of 100 cases of reading disability were also found to be exophoric, while only 16.7% of an unselected population showed such defects. Similarily, Eames reported 44% of the poor readers were found to have poor fusion, while he found only 18% in his unselected sample. Gates (1935) cited a study by Fendrick which showed 48% of his poor readers failed on a test of binocular acuity, while only 23% of his normal readers failed. The other major differences were found on tests for ametropia, with 42% of slow readers and 23% of the normal readers showing such defects. It is interesting to note that a test of near point fusion was failed by 12% of his poor readers, while 14% failed in the control group (p. 20).

Spache (1976) cites the studies of Monroe (1932), Fendrick (1935), C. T. Gray (1917), Wagner (1937), Eames (1935), and Wirty and Kopel (1936) and states that all except Fendrick report insignificant differences between the visual acuity of groups of poor and good readers at the elementary school level. Starnes (1969, cited in Spache, 1976, p. 51) "found no general interaction between visual acuity and reading, although his good readers tended to be near-sighted, his poor readers farsighted."

Bateman (1963, cited in Hewett and Forness, 1974, p. 360) "examined ninety-six partially seeing children in grades two to four and found the reading achievement of this group sample similar to the level of achievement of sighted children."

Allington, Gormley and Truex (1976) state that recent

> ...research results indicate that disabled readers accurately perceive letters, symbols and words, but incorrectly label them because of difficulty in making the verbal associations. In two separate experiments employing subjects selected from the second to the eighth grade (Vellutino, Steger, & Kandel 1972, Vellutino, Smith, Steger, & Kaman 1974), poor readers achieved a considerably better performance in visual recall of words presented tachistoscopically than they did in pronouncing those same words. Similar results were achieved when these subjects were required to graphically reproduce the stimuli. Of further interest in these studies is that the poor readers generally reproduced the stimuli correctly even though they had a large number of apparent spatial and sequential errors in an oral reading of the stimuli (e.g., was/saw, bin/din, cob/cod, lion/loin, snug/sung) (p. 292).

Allington, Gormley and Truex (1976, p. 292) support these results with their own research that studied 24 grade three subjects.

They concluded that "a visual perceptual deficit is unlikely to be an important factor in reading disability."

Critchley (1970a, p. 61) concluded as well that "...developmental dyslexics usually show no difficulty whatsoever in such non-verbal tasks as discriminating between pictures of different types of automobiles, aircraft, flowers or dogs. Nor do they fail to identify photographs of such celebrities as might be expected to be within their experience...." It seems likely, therefore, that defective pattern-learning cannot be the sole factor, or even the most significant one, in the explanation of SRD. Fisher and Frankfurter (1977, p. 64) in the study of 12 disabled readers, age 10 years, found that each disabled reader "could easily identify individual letters, but when letters are to be put together and need to be named, as in reading, processing becomes more difficult and less efficient. That is, b is identified as b, and a is identified as a, but, when b and a are put together in close proximity, the disabled reader has a great deal of difficulty identifying ba, and even more difficulty with the longer word bakery."

Such data indicate that while SRD children exhibit higher rates of visual perceptual difficulties, such difficulties are not unique to SRD children, nor are they unanimously associated with SRD. Bateman (1969) and Cohen (1969) have pointed out that perceptual deficiencies may, indeed, be present but are often unimportant for learning. Benton (1962) concurred with their conclusion when he stated:

> My conclusion is that deficiency in visual form perception is not an important correlate of developmental dyslexia. By this I mean that, while it may be a determinant of the language disability in some cases, it is not a significant factor in the majority of cases. A certain level of visual discriminative capacity is obviously a necessary precondition for learning to read, and there is variation in the rate of development of these visuoperceptive skills in the early years of life. Significant retardation in development which extends into early school years will then necessarily entail a corresponding retardation in learning to read; hence a relationship between the two sets of skills in younger school children will be discernible. But as the retardation in level of visual perception is overcome by the child, his reading level should improve correspondingly, at least under favourable circumstances. Thus, I should guess (and it is only a guess) that transient reading disability is often conditioned by a retardation in the development of higher-level visuoperceptive skills. (Longitudinal studies of children who show specific reading disability in the early grades of school should advance our understanding of this issue.) If visuoperceptive skills remain defective, then reading will also probably remain defective. But this factor accounts, I think, for only a very small proportion of cases of developmental dyslexia in older school children (i.e., above the age of ten). There remains the "hard core", consisting of dyslexic children whose difficultues are not ascribable to non-symbolic visuoperceptive deficit (p. 94).

From the literature on the significance of visual defects in reading disabilities, it is difficult to reach very definite conclusions. While it seems reasonable that correctable defects would be corrected, unless sight is so defective that it obviously interferes with reading, the defect would not be considered to be a cause of reading disability.

Auditory Memory Span and Discrimination

Auditory discrimination difficulties are exemplified by a number of specific problems. Robinson (1946, cited in Walby, 1967) found that thirty-two per cent of the disabled readers in her study were below expectancy in their ability to discriminate either vowels or consonants. Cotterell (1970, p. 53) stated that "discrimination of short vowels is one of the greatest problems of the auditory dyslexic. Although the child understands words such as 'big', 'beg', 'bag' in context, he is unable to perceive differences when they are heard in isolation." Mark et al. (1977), working with second-grade school children found that poor readers were less able than good readers to access and use phonetic representation either when words were presented in script or presented auditorily.

Investigating ability to discriminate pitch, Kennedy (1942, cited in Walby, 1967) found that poor readers tended to do less well in pitch discrimination than did good readers. Wheeler and Wheeler (1954) used silent reading tests and a test designed to measure ability of elementary children to discriminate sounds to test for an association between the two skills. For students in grades four, five and six, a substantial relationship was not found between silent reading and the ability to discriminate sounds in spoken words.

Templin (1954, cited in Walby, 1967) using a test of discrimination of nonsense pairs, found a correlation coefficient of only .22 with reading achievement among 206 Minneapolis public school children at

fourth grade. Nor were the differences in sound discrimination ability significant between the 26 children with the highest reading scores and the 26 children with the lowest reading scores of the subjects who were average in chronological and mental age for the grade.

In a more recent study, Hammill and Larsen (1974, p. 433) stated that the relationship between auditory discrimination and reading achievement is high because when children are separated into groups according to their reading ability "they are inadvertently separated by intellectual ability, as well ..."

Hammill and Larsen (1974) reviewed 33 studies, which reported 292 separate coefficients, to examine the relationship of reading to measures of auditory discrimination, memory, blending and auditory-visual integration. The research studies were evenly distributed among elementary grade levels with two studies at the secondary level. The authors concluded:

> This review of research fails to validate the assumptions raised earlier i.e., that particular auditory skills, as measured, are essential to the reading process, and that many children actually fail to read proficiently because of auditory perceptual deficits. Apparently a large percentage of children who perform adequately on tests of auditory perception experience difficulty in learning to read; and an equally sizable percentage who do poorly on these same tests have no problem in reading (p. 434).

Hammill and Larson (1974) do caution the reader

> Not to generalize the findings reported in this review to other auditory functions, namely to auditory acuity, listening comprehension, or "phonics" skills. There is a substantial amount of research which indicates an apparently strong relationship between semantic

> language and/or verbal association ability and reading proficiency (Vineyard & Bailey 1960, Hirshoren 1969, among others), though we have not found this to be the case in our research (Hammill et al 1974). Teaching children to associate letter sound with their graphic representations has long been recognized by teachers as essential, or at least very desirable, to reading though this seemingly valid procedure should probably be carefully studied in future research (p. 434).

While it appears that SRD children are able to hear and distinguish sounds, for many of the children have no difficulty in comprehending single words, they do appear to be limited in the amount of information they can remember at one time (Vellutino, 1977). This difficulty is reflected in their inability to act in a series of commands or comprehend complex verbal instructions. The problem is often referred to as limited auditory memory span. Anderson (1953, cited in Zigmond, 1969, p. 199) "defined span as the ability of an individual to retain and associate together for the purpose of immediate reproduction, a series of impressions, auditory or visual." Such deficits will not only affect a child's ability to respond physically to auditory stimuli, but his reauditorization will be badly affected. "Children with formulation difficulties tend to omit words, distort the order of words, use incorrect verb tenses and make other grammatical errors long after such errors have been recognized and corrected by the normal child" (Zigmond, 1970, p. 200).

Richie and Aten (1976) explored the ability of children to retain serially presented auditory stimuli. The performance of 20 children, age ten years, with reading disabilities, was compared to a matched

group of children without reading disabilities. They concluded "that clinical observations were substantially supported that children with reading disabilities could be expected to perform significantly poorer on tests requiring auditory retention ... " (p. 312).

In summary, there appears to be general agreement that auditory discrimination is related to reading achievement, but considerable disagreement as to the extent of this relationship. Children with reading disabilities do not appear to have obvious or simple auditory perceptual or auditory discrimination problems (Bryan, 1974b). When the task is more complex, such as making an association among particular sounds and reproducing the product, the SRD child is markedly inferior to the child who has developed reading fluency.

Socioeconomic Status

Barton and Wilder (cited in Spache, 1976), in the United States, and Joyce M. Morris (1966), in Britain, have studied the relationships between reading achievement and socioeconomic status. Their studies found a positive relationship between poor reading performance and low socioeconomic status. Spache (1976, p. 217) stated that not all studies do show a marked "relationship between socioeconomic status and reading, partly because they vary in their criteria for judging this characteristic." Spache (1976, p. 217) cited a Callaway (1972) example, and stated, "Callaway did not find father's occupation significant, but did note that children with working fathers scored significantly higher in reading."

Bell, Lewis and Anderson (1972) did a factor analysis on forty-three variables that were possibly related to reading progress. Low socioeconomic status, as measured by the educational level of the parents, was found to correlate with reading retardation. Spache (1976) believes that a low socioeconomic status often combines with frequent school changes to negate against normal reading progress. Spache (1976) cites six large-scale studies in the United States and Canada that found no significant differences in reading due to frequency of school changes

> ...but when, socioeconomic status of the families is considered, the picture changes to indicate that achievement is definitely lower for mobile lower-class pupils than for middle and upper-class mobile students. For lower-class students, I.Q., and reading achievement declined as mobility increased, even though in this group most moves are within the same school system (p. 228).

Philion and Galloway (1969) discovered that poor language skills were associated with reading retardation in their study of west coast Indian children of British Columbia, while Werner et al. (1967, cited in Spache, 1976, p. 215) "found that 88 per cent of the reading-problem children in a large-scale study in Hawaii came from homes where Pidgin English was frequently spoken." On this continent,

> The only comparable data available on a group of pupils who similarly experienced a language problem in dealing with the school, are those that we have about the progress of immigrant children in our schools earlier in this century. Such children were, in general, also retarded in grade placement for their age twice as often as were native whites (Spache, 1976, p. 217).

Summary

In summary, the research studying characteristics of the specific reading disabled student suggests a number of attributes related to the dysfunction. A higher rate of boys is continually reported. A common percentage ratio quoted is 80 per cent boys to 20 per cent girls. While lateral dominance as a characteristic has been debated for decades, it now appears that mixed dominance may not be a contributing factor to specific reading disability. The evidence is likewise confusing when visual and auditory problems are correlated with reading difficulties. While there appears to be a relationship between visual and auditory discrimination and reading achievement, there is considerable disagreement as to the extent of the relationship.

Low socioeconomic status does appear to correlate with reading retardation, especially if the condition is combined with frequent school changes. However, while low socioeconomic status combined with frequent school changes may correlate with reading retardation, it would not be, by definition, a cause of specific reading disability.

## TEACHER IDENTIFICATION OF SPECIFIC READING DISABLED STUDENTS AND RELATED CLASSROOM BEHAVIORS

Analyses of referral patterns of children for special education programming show that most referrals are by classroom teachers (Nicholson, 1967; Robin, Mercer and Meyers, 1967; Keogh, Tchir and Windeguth-Behn, 1974). The high rate of referral is due to the many opportunities reading teachers have to evaluate children's

reading performance. As Stauffer, Abrams and Pikulski (1978, p. 54) state, "...Every time a teacher instructs students and observes their inter-action with a piece of written material, there is the potential for the evaluation of reading." Carter and McGinnis (1970) stated that the reading teacher can identify the specific reading disabled. They stated that three of four levels of reading diagnosis can be accomplished by the reading teacher without the aid of a reading clinician.

> The alert teacher can identify the child in her class who is failing to make satisfactory academic progress because of a reading disability. This identification is diagnosis at the first level. Furthermore, the capable teacher can become aware of the child in her fifth-grade class who is reading at the second-grade level (2.0) and who is penalized both academically and socially as a result of a marked reading defect. This is an example of the second level of diagnosis, which involves measurement and classification. By means of test data, school history, observations, and informal reading inventories, the classroom teacher can diagnose at the third level, identification of reading needs, those skills which the child needs to acquire if he is to make the progress expected of him in reading (p. 154).

While it may be clearly demonstrated that teachers are in a position to evaluate and refer children for reading assistance, the methods teachers employ to select students for referral require more study.

Teacher Identification of Specific Reading Disabled Students

The teacher's key position in identification of reading disabled children "make teacher recognition of pupils' problems of primary importance, as without this cognizance, it is unlikely that a given child will be provided special educational services" (Keogh, Tchir and

Windeguth-Behn, 1974, p. 367). While Ferinden, Jacobson and Linden (1970) and Stauffer, Abrams and Pikulski (1978) found that teachers' observation is the most common method of identifying high-risk children, a search of the literature uncovered no research studies that examined the accuracy with which upper elementary school teachers identify reading disabled students. A number of studies at the kindergarten and early primary level were found. At the kindergarten level the teacher is usually the first professional that suspects that something is unusual about the SRD child's learning rate. There may be symptoms that the child is exhibiting even at this early level that differentiates the SRD child from other children in the class. He may illustrate a short attention span, impulsive behavior, or be unable to print his name or name the letters of the alphabet as the other children can do at the conclusion of the kindergarten program (Cowgill, Friedland and Shapiro, 1973). At the grade one level, kindergarten children who cannot name the alphabet should be considered high-risk children, for the ability of beginning grade one children to name the letters of the alphabet is a good predictor of early reading skills (Olson, 1958, cited in Carter and McGinnis, 1970).

Keogh, Hall and Becker (1974, cited in Becker and Snider, 1979) and Feshbach, Adelman and Fuller (1974) report significant correlation between kindergarten teacher ratings and grade one performance. Keogh and Smith (1970) state that there is a high and significant association between kindergarten teacher ratings and scores on achieve-

ment tests extending as far as the fifth grade. It appears that the children whom teachers view as having the most school problems at kindergarten are those who achieve the lowest scores in the elementary grades (Becker and Snider, 1979; Keogh and Becker, 1973; Keogh and Smith, 1970).

Becker and Snider's research of 1979 extended the study of early prediction of learning problems to the junior high school level. In comparing the first grade teacher records of forty-seven boys enrolled in classes for the educationally handicapped with forty-seven normal boys in regular classes, all at the junior high level, differences in the frequency of certain characteristics were noted.

> In particular, educationally handicapped boys, when compared to normally achieving boys, were characterized more often by kindergarten and first-grade teachers as being immature, insecure, quiet, needing reassurance, learning slowly, having a short attention span, and seeking the teacher's attention. Data suggests that the educationally handicapped child was "different" in many respects from the normal child as early as kindergarten and the first grade (p. 97).

However, there is evidence to indicate that both teachers and parents do not always recognize the SRD student. Schiffman (cited in Eisenberg, 1966, p. 12) "in a study of eighty-four elementary school children referred for placement in classes for "slow learners" because of academic failure, found that 78 per cent had Wechsler performance quotients in the average or better range. Yet only 7 per cent of their teachers identified them as other than dull, and only 14 per cent of their parents recognized their potential." Eighty-six per

cent of the children saw themselves as dull. The teacher has a prime role here to accurately identify these children.

Kapellis (1975) and Hartlage and Lucas (1973) found that classroom teachers could employ standardized screening tests at the beginning grade one level to assist their own judgment in predicting first year reading performance.

However, early identification of the specific reading disabled child is not easy since certainty of diagnosis rests on a real failure which is usually not apparent until a child is seven or eight years old (Valett, 1970). Teachers should become suspicious of a possible SRD when a seemingly bright child exhibits varied performance from day to day as well as from subject to subject, shows an inability to follow directions, appears restless, leaves much work unfinished and copies poorly from the blackboard (Lukens, 1969). But Schiffman (cited in Eisenberg, 1966) advises caution in the identification of specific reading disability cases. In a concern for early identification teachers must be careful not to make a diagnosis of SRD on the basis of finding some of the common correlates of the reading syndrome unless the reading process itself is clearly disturbed (Orton, 1937). However, SRD children may exhibit classroom behaviors that set them apart from their peers. The next section of this review will consider these behaviors.

Classroom Behavior

According to Richey and McKinney (1978)

> Our present knowledge about classroom behaviour patterns of learning disabled children has been obtained primarily from screening instruments that rely on teacher ratings at the time of referral to special educational services. (Bryan, 1974b; Foreman & McKinney, 1975; Keogh, Tchir, and Windeguth-Behn 1974; McCarthy & Paraskevopoulos 1969). In general, comparative studies with those instruments support a widely accepted stereotype of learning disabilities that includes descriptions of inappropriate classroom behaviour as well as cognitive and psycholinguistic deficits. Some frequently cited characteristics of learning disabled children include hyperactivity, emotional liability, distractibility, impulsivity, social immaturity, and aggressiveness (p. 298).

However, Hewett and Forness (1974, p. 136) stated that, "Characteristics such as hyperactivity, distractibility and impulsivity are often observed in emotionally disturbed children who do not exhibit specific learning disabilities," while Love (1970) states that specific reading disabled children may or may not exhibit maladaptive behavioral patterns. There may be no externally visible signs other than the child's response to printed symbols. On the other hand, children with SRD may demonstrate such behavioral patterns as short attention span, distractibility, hyperactivity and impulsiveness. While short attention span related to auditory or visual memory may be part of the reading disability, hyperactivity of children with SRD may be situational specific (Tarver and Hallahan, 1974). Rappaport Hirt and Decker, (1964, cited in Hewett and Forness, 1974, p. 136)) "have speculated that hyperactive behaviour is not necessarily bad,

but the fact that there is so much of it causes problems in the classroom. Outside, where demands for conformity and control are lessened, this problem may not occur." Here one might wonder if the hyperactivity is caused by the tension of the situation or if the necessity of attending to task highlights the hyperactivity.

Cruickshank (1967, cited in Hewett and Forness, 1974)

> has included hyperactivity along with hyperdistractibility, disinhibition, and impulsivity under the general problem heading of distractibility in describing such children. He views the basic difficulty as stemming from the child's inability to refrain from reaction to extraneous external or internal stimuli. As a result, such a child often is a poor participant in games requiring prolonged concentration and attention, readily being drawn away by noise and activity around him or irrelevant thoughts about past or future events (p. 136).

Richey and McKenney (1978) compared the classroom behavior of 15 learning disabled boys with 15 matched normal boys in order to determine the difference in behavioral style. "Results indicated that of 12 discrete kinds of classroom behaviour, only one, 'distractibility,' differentiated the two groups" (p. 297). They concluded:

> This finding tends to confirm the results of previous studies using both a teacher rating approach (Foreman & McKinney, 1975) and a direct observation technique (Bryan, 1974). There was no indication that learning disabled children as a group possess a negative behavioural style including conduct problem behaviour, hyperactivity, passivity, and dependency. Therefore, very limited support was found for the stereotyped cluster of behaviour that is frequently attributed to LD children (p. 301).

Similar results were found by Bryan and Wheeler (1972) who concluded from the examination of observers of children's interactions

that learning disabled children were less task-oriented but did not differ in other categories of behavior. Bryan (1974a), in a follow-up study, found that learning disabled children spent less time working and more time waiting than other children in the classroom. The same study found that the teacher was less responsive to the learning disabled child. Both of Bryan's findings were supported by Forness and Esveldt's 1975 study. However, Bryan (1974a) found that on-task behavior increased relative to non-task behavior when the child was placed in a special education classroom.

There is evidence that indicates that the distractibility and restlessness of reading disabled children decreases with age. Hewett and Forness (1974) reported the results of the five-year follow-up study of Weiss, Minde, Werry, Douglas and Nemeth (1969). The study looked at sixty-four hyperactive children, sixty boys and four girls, that were between the ages of six and thirteen years at the start of the study. Hewett and Forness state:

> The most striking finding was that, whereas restlessness had been the main problem for each child five years before, it was no longer the chief complaint for any child. Classroom observation of the children revealed more restlessness than normals but it was much more subdued and less disturbing (e.g. playing with a pencil) than it was five years earlier (e.g., walking around the room). Distractibility was still evident but less so than at the onset of the study. A significant decrease was also seen in aggressiveness and excitability. The most common behavioural problem was emotional immaturity, which was reported by seventy percent of the parents. The second most common trait was described as a lack of ambition and a severe lack of ability to maintain goals. Thirty percent of the children had no steady friends and twenty-five percent had a history of

> acting out and anti-social behaviour. Ten of these latter children had difficulties with the law. Eighty percent of the children were doing poorly in school. As in earlier studies, poor academic functioning was the feature most clearly distinguishing the group as a whole. The authors concluded that even though hyperactivity diminishes with age, other major handicaps such as underachievement and emotional immaturity persist (p. 202).

Girls as a group appear to have some advantage over boys in the verbal skills basic to school performance, "but the boy/girl learning problem report ratio appears to be aggravated by behavioural differences" (Caplan, 1977, p. 315). Caplan and Kinsbourne (1974) found that boys who fail in school tend to act aggressively whereas girls accepted failure in a more socially acceptable way. Stanchfield (1969-70) cited the studies of Kohlberg (1966) and Sears and Feldman (1955) when he stated:

> Boys were found to be more aggressive and less conforming in the school situation. This comparison of aggressive behaviour of the boys versus the conforming, "nice" behavioural responses of girls was underscored by Kohlberg who suggested that "niceness" is a very important value to schoolage girls, connoting nonaggression, interpersonal conformity, restraint, and nurturance of helpfulness. Because aggression has been considered a major component of "badness" by many teachers, it was not surprising that Pauline Sears and David Feldman in the National Elementary Principal reported that boys received significantly more disapproval or blame than girls. Further, teachers criticizing a boy were more likely to use a harsh or angry tone, while criticisms of girls were generally conveyed in a normal tone (p. 206).

The boys' aggression made them more noticeable than the silent well mannered behavior of the girls. The boys' behavior made it more likely that they will be referred for special help (Caplan, 1977;

Caplan and Kinsbourne, 1974).

Spache (1976) believes that the whole concept of reading is related to male/female sexuality, for as

> ...early as primary grades boys and girls differentiate themselves in the subject they tell about in class and in the language experience stories they compose. Girls want to talk about birthday parties, events at home, shopping, and the like, while boys offer stories of real or imaginary adventure, outdoor activities, and things that their father does with them....
>
> In striving to reach the male ideal, as they see it, boys are less conforming, more aggressive, and more difficult for teachers to mould (p. 246).

Blom, Waite and Zimet (1968), and Asher and Gottman (1973) postulated that motivation may be a central factor in the poorer reading performance of boys. Blom, Waite and Zimet found that most grade one reading material was not especially motivating for girls or boys. While Asher and Gottman concluded from their study that, "when boys were interested in the material they read as well as girls... boys' performance appears to have been particularly facilitated by the high interest material, while girls comprehended nearly as much of the low interest material as the high" (p. 685). Since boys read as well as girls on high-interest material, it appears that motivation has an important effect on the achievement of boys.

In this same vein, Powell (1967) reported that boys in our society are taught to view reading as a feminine pursuit inappropriate for the mythical "All American Boy." When reading disability is added to this striving for the male ideal, acceptance and identification with

the school's basic goals are very difficult for these students. "Negative teacher reactions to these problem children appear as part of the picture" (Spache, 1976, p. 240). Spache (1976, p. 220) states that the studies of Arnold (1968), Davis and Slobodian (1967), and Good (1970) illustrate "that as a group, boys receive more negative remarks, are given fewer opportunities to participate in the reading lesson, and receive lower grades than do girls, in keeping with their tendency to disappoint the teacher's expectations in reading achievement and classroom behaviour." Davis and Slobodian (1967) found that even the students' peers were aware of the teachers' negative reactions.

Hewett, Quay, Taylor and Watson (1973, cited in Hewett and Forness, 1974) explored the opinions of classroom teachers regarding the effects of having mildly retarded, emotionally disturbed, and learning disabled children integrated in their classrooms. Three hundred regular elementary teachers were surveyed. A comparison of the top 25 per cent of the most knowledgeable and positive responses were compared with the bottom 25 per cent of the least knowledgeable and positive responses. Results clearly illustrated a change of opinion in a positive direction through in-service training programs and actual student-in-class experiences.

Foster, Schmidt and Sabatino (1976) investigated teachers' expectancies created by the term "learning disabled." Forty-four elementary classroom teachers watched a videotape of a normal

fourth grade male child engaging in various activities. Half the group was told it was watching a normal grade four child while the other half of the group was told that the child had been identified by a clinical team as learning disabled. The second group rated more negatively than the control group. While this study illustrates that teachers associate certain behavior with learning disability, "there has been no study of how often, how much, and under what conditions a behaviour must be demonstrated (in the classroom) by a child in order for the child to be characterized by that label" (Bryan, 1974a, p. 26).

However, reading difficulties may lead eventually to patterns of behavior that interfere with a child's ability to get along with others (Rappaport, 1964). One of these patterns is a low frustration tolerance. When the child is not immediately successful, he may lash out and attack the object, person, or situation seen as responsible for his failure. Such behavior patterns interfere with positive child-peer relationships. Spache (1976) indicates that:

> When children are asked to indicate which of their classmates they would like to work or sit with or otherwise relate to, poor readers tend to be isolated in the diagrammatic sociogram used to depict these interpupil choices (Grice and Wolfe 1972). In self-ratings on a social distance scale, poor readers recognize and acknowledge their lack of acceptance by their peers (Stevens, 1971). It is not quite clear whether these pupils withdraw from social contacts because they are threatened by the reading failure or the competition, or whether they recognize and accept isolation because of inability to identify with the more successful pupils. In any event, peer status is more closely related to reading achievement than is the socioeconomic status of the student body. Rejection by peers strengthens the low self-

concept and withdrawal that many poor readers exhibit ... (p. 247).

In checking the stability of the peer rejection phenomenon, Bryan (1976) replicated a study done one year earlier by readministering a sociometric scale to classrooms in which 25 of the original learning disabled sample were present. The results showed "that learning disabled children were more likely to be rejected and less likely to be accepted by peers, thus replicating the results of an earlier study. In general, it appears that learning disabled children are rejected across time. One year later their social status had not changed" (Bryan, 1976, p. 309).

Spache (1976, p. 218) believes that, "poor readers tend to recognize their lack of acceptance as shown by negativism towards peers ..." He goes on to state, "...in dealing with other children, retarded readers show less tolerance, fewer efforts to find solutions for conflicts and greater defensiveness than do normals."

However, Lerner (1976, p. 329), while agreeing that emotional problems are often found in the learning disabled child, concludes that "there appears to be no common characteristics of personality development for children with learning disabilities."

Certainly many children with SRD do not exhibit any of the primary behavioral disorders, but lack of success in reading can lead to the occurrence of maladjusted emotional behavior.

Emotional maladjustment caused by lack of success in reading

does not occur at the same time as the initial reading loss starts. In grade one and two many children have not internalized reading as a value (Williams, 1973). Furthermore, it is only after they have attended school for some time that they realize they are having difficulty.

As these children become aware of their difficulties, they often feel a sense of loss (Smith, 1968). They know they are not progressing with their peers. Such knowledge contributes to emotional and social maladjustment. "He fails to get satisfaction, security, and recognition in a manner pleasing to himself and at the same time acceptable to his group" (Carter and McGinnis, 1970, p. 60). Inconsistent experiences of success and failure during the elementary grades can interfere with a child's developing sense of identity (Robbins and Harway, 1977). The reading disabled child is likely to experience an uneven series of successes and failures. The vacillating performance gives the child "...a less stable sense of his ability to perform" (Robbins and Harway, 1977, p. 361). His self-concept is reduced. In many instances the child will withdraw from further effort (Johnson, 1966).

Summary

In summary, the literature related to teacher identification and classroom behavior of SRD students indicates that teachers have a central role to perform in the assistance of these children. Studies at the primary level support the view that teachers can identify the

students likely to have difficulty with reading. However, there is some evidence to indicate that being identified as reading disabled can result in negative reactions both from the classroom teacher and student peers.

Primary behavior disorders have been identified by a number of studies. Distractibility, aggressiveness and poor social acceptance have all been reported, but it is not clear whether these traits cause or are caused by reading disability. There is little doubt that severe reading disability has an effect on self concept development. Reading disabled children are more likely than normal readers to feel rejected by peers. However, there appears to be no common characteristics related to self concept development.

Girls may better be able than boys to handle a lack of success in reading. Boys more often respond aggressively while girls accept failure in a more socially accepted way. The acting out behavior of the boys is more noticeable in the classroom. Such behavior is likely to be upsetting to the teacher and, therefore, lead to the student being referred for special assistance.

## SHORT AND LONG TERM GAINS RELATED TO PROGRAM CHANGES OF SPECIFIC READING DISABLED STUDENTS

A search of the literature uncovered few studies related to program changes affected by identification of a student as specific reading disabled, especially if a student's reading program remained under the direct evaluation of the reading teacher. Nor does there appear to

be research that indicates the number of identified specific reading disability cases that are given reading assistance outside the classroom setting. A number of authors have suggested that reading teachers have a paramount role to play in the assistance of specific reading disabled students. Zintz (1977, p. 21) states that "if classroom teachers do not meet the reading needs of most children, there is not the slightest hope that these needs will be met at all." Tarnopol and Tarnopol (1976) agreed when they pointed out that the rate of referral for special help is increasing faster than services can be arranged and thus regular teachers must remain responsible for these children. Stauffer, Abrams and Pikulski (1978, p. 50), while believing that regular teachers have a responsibility to assist the reading disabled case, stated that unfortunately it is frequently found that school personnel "...are eager to embark upon a sophisticated-looking diagnostic, early identification program without having a program of effective intervention mobilized." However, McGinnis (1969-70, p. 195) states that the teacher is capable of doing more and must do more than "go through the basal text." She goes on to state, "remediation involves treatment which is based upon diagnosis, and diagnosis is a continuous process never completed until the disability has been eliminated."

Many SRD children can receive adequate remedial instruction in the classroom (Carter and McGinnis, 1970). However, many school systems are adding to their teaching staffs reading therapists who

provide corrective instruction both individually and in small groups. "In most communities less than 3 per cent of the students need to be referred ..." (Carter and McGinnis, 1970, p. 59).

While no studies were found that substantiated the effects of reading teacher remediation of reading difficulties, a number of studies verify the gains made through referral services.

Studies of Referral Service Gains

Several studies involving reading achievement compared groups of disabled readers who received out-of-classroom help with those who did not.

Mouly and Grant (1956) studied 989 pupils in grades four through eight in a Milwaukee public school program. The average degree of reading retardation was 12 months below mental age. The average gain in reading for these pupils was 2.26 months for every month of attendance in a reading center. Thus, thirty minutes of small group instruction daily, plus the regular classroom program, resulted in reading gains twice that normally expected for these pupils.

Fry (1959) evaluated the reading gains of 202 children who attended the remedial reading clinic at Loyola University, Los Angeles, California. The students' ages ranged from grade 2 to grade 12, with a mean grade placement of 6.1. The mean reading retardation was 3.12 years below grade expectancy. The results of the study showed that the average gain was about a year per four month session as measured on the Standardized Oral Reading Paragraphs.

In a British study at the University of Manchester, Dunham (1960) studied the reading gains of twenty severely retarded nine-year-old children of average intelligence. The children worked in small groups of not more than six, once or twice weekly, for six months. They were paired, child for child with a like group waiting for remediation. The experimental group gained 6.4 months in reading over the control group.

During his study of 24 children at the Remedial Education Centre at the University of Queensland, Cochrane (1964, cited in Hawkins, 1971) found that the rate of progress after remedial teaching was almost four times greater than pre-teaching rate.

Lovell, Johnson, and Platts (1962) reported on a British study of remedial gains, as well as a two year follow-up to determine how well the gains were retained. Of the 259 children, 99 were taught individually at a child guidance center, while the remainder of the students received small group instruction in their own schools. Over an average instruction period of one year, both groups of children made an average gain in excess of two years. On follow-up it was found that progress had continued after remediation but at a slower rate. Those children who made the most progress during the period of remedial teaching tended to have the highest reading ages on follow-up.

A second British study was reported by Lovell, Byrne and Richardson (1963). They compared the reading gains of 261 students

who had attended a full time remedial center at least 16 months previous to the study, with a control group of 55 students. While it was found that reading improved during remediation, reading skills declined sharply after remedial teaching ended. The authors stress "that although the progress made by the majority of the children involved in this study was limited, the progress made was of great importance for the pupils concerned" (p. 9).

However, there is evidence that suggests that referral for special teaching assistance does not result in significant reading gains over assessment programs only. Tufvander and Zintz (1957) conducted a study to determine how much the Educational Clinic at Iowa Teachers College helped pupils who had been referred there because of reading difficulties. The study compared children who had received clinical instruction with those who had not received clinical instruction but had been advised of remedial procedures to follow at home or at school.

A total of 82 children composed the sample for the study. The children ranged in grade placement from one to eleven, with a chronological age range of eight to seventeen years. The range of intelligence quotients was from 80 to 134 with an average of 102.5. The 82 children were divided into two groups. One group, 40 children, had been referred to the clinic for testing and recommendation but received no reading instruction. The second group received varied amounts of instruction in addition to the testing. Reports

for all subjects were prepared and sent to the children's schools.

Results showed that at the time of the follow-up study, 49 per cent of the total sample were making normal reading progress while 26 per cent of the children were making better-than-normal growth. When the two groups were compared, no statistical difference was found in reading progress.

In interviews conducted with the parents Tufvander and Zintz found that 10 per cent of the remediation-instruction group received private remedial instruction after they were at the clinic, while 30 per cent of the diagnosed-only group received private lessons. As well, the Authors found that schools were less likely to give special reading instruction to children that were receiving instruction at the clinic. Only 19 per cent of the remedial-instruction group received special help from the teacher, compared to 38 per cent of the diagnosed-only group receiving such help. Tufvander and Zintz concluded

> ...that teachers are prone to give less special attention to pupils who have had remedial instruction in reading; and that parents of children who have had even a small amount of instruction in the clinic are less likely to give special attention to the children at home or to secure a private tutor (p. 156).

A study conducted by Walker (1966, cited in Hawkins, 1971) also compared the reading progress of clinic-instructed and diagnosed-only groups of children. The clinic-instructed group received one hour of instruction three to five times a week for approximately two

years. The other group had no other contact with the clinic following diagnosis. While both groups made reading gains during the two year study, there was no significant difference between the overall reading gains of the two groups.

Turner's (1969, cited in Hawkins, 1971) study supported the findings of Walker's study. There were 60 grade three, four, and five subjects in Turner's sample. Thirty-six students were in the diagnosed-only group, leaving twenty-four that received remedial instruction for a five week summer period. A statistical analysis of data did not reveal a significant improvement in reading for either group.

Chamberlain (1963) suggests that the diagnosis-only group benefits by having the attention of parents and teachers focus on the child's reading problem. Such focusing creates a potential for additional assistance both at school and at home.

Permanency of Gain

However, while a number of studies have reported reading gains during remediation (Sabatino, 1971), some authors (Balow, 1965; Silberberg and Silberberg, 1969; Glavin, 1974; Ito, 1980) question whether academic gains are maintained when remedial education is terminated.

Binkley, in her 1975 summary of the literature, listed the studies of Cashdan and Pumfrey (1969), Collins (1961) and Muchl and Forell (1973) as supporting the belief that progress made during

remedial treatment was not continued when treatment ended. Binkley (1975, p. 10) states that "these findings are consistent with the related research by Lovell, Byrne, and Richardson (1963) and Curr and Gourlay (1960) who found no significant difference in reading performance at follow-up between those who did and those who did not attend remedial centres."

Silberberg, Iverson and Goins (1973) examined the effects of different remedial reading methods on the permanency of reading gains. Their study involved children in third grade remedial classes. Subjects all had group I.Q. test scores of 90 or above and were retarded in reading by one grade or more. The 102 subjects were divided into 4 groups. Each group of children followed a different remedial method, including three single modality methods and one multisensory method based on the Orton-Gillingham method of remedial reading. The children were tested before beginning remediation, immediately upon completion of the remedial year, and half-way through the fourth-grade as a follow-up.

All four methods improved the students' reading achievement but by the middle of the fourth grade, much of the gains had disappeared. None of the methods demonstrated a long range practical impact on the children's reading level.

Balow (1965) concluded that while remedial instruction allowed a child to progress in reading skills after returning to full time regular classes, the student's progress gradually tapered of. He states

> ...remedial reading instruction produces substantial gains while the pupil is actively receiving assistance ... (and) enables the disabled reader to continue to progress in reading skills after his return to regular classes. The follow-up data indicates, however, that despite his continued progress, the disabled pupil increasingly falls behind his classmates, because after his remedial assistance is terminated, he does not progress as rapidly as does the normal reader (p. 582).

A more recent study was completed by Ito in 1980. The purpose of the study was to ascertain if the reading gains made after part-time placement in a resource room would be maintained following a year of full-time attendance in a regular class. The subjects were 62 learning disabled children. The ratio of males to females was approximately two to one. Chronological ages ranged from 6 years to 12 years with the majority falling in the 10 to 12 year old group. The Wide Range Achievement Test was administered at the start of remediation, at the conclusion of the remediation, and at the one year follow-up. Ito (p. 325) concluded, "that the resource room model is effective for increasing children's reading achievement rates. The increased learning rates, however, were not maintained at the same level by these children following a year of full-time attendance in the regular classroom."

The studies researching gains related to program changes of specific reading disabled students may be summarized in three statements. First, clinic remedial classes and resource room programs can have dramatic positive effects on the reading progress of these children. Second, identification alone may focus the problem

for significant others in the child's life, leading to individual help and thereby gains in reading achievement. Last, gains appear to be of short term if remedial assistance is discontinued and the child returned full time to the regular classroom.

# CHAPTER III

## DESIGN OF THE STUDY

This study was designed to examine the accuracy with which teachers identified specific reading disabled students. The purpose was to compare teacher characteristics of training and experience with success in identifying specific reading disabled students within the teacher's own classroom.

The specific problems raised for investigation were:

1. Do the criteria that teachers use in identifying "specific reading disability" cases relate to specific teacher variables?
2. Using the operational definition of this study for "specific reading disability," how effective are regular classroom reading teachers in identifying the specific reading disabled child?
3. How are school reading programs altered for those students identified as "specific reading disabled"?

In order to achieve the purpose set in this study, the Researcher held four interview sessions with each of the eighteen classroom teachers. The students of the eighteen classrooms wrote a group reading test. A group intelligence test and/or an individual intelligence test was administered to a select number of students from the eighteen classrooms.

## THE SAMPLE

The subjects of this study were drawn from the grades four, five and six population of the County of Lethbridge No. 26 and Pincher Creek School Division No. 29. Homogeneous grouping by classroom was not practiced in either of the two school districts. A stratified random sampling procedure was employed to select six teachers and their students at each of the three grade levels (Ferguson, 1966). Teachers of multi-grade classrooms were excluded from the study. Of the 18 teachers included in the study, 10 were employed by the County of Lethbridge and the remainder by the Pincher Creek School Division. Table 1 provides data regarding the grade placement and sex of the student population of the 18 classrooms.

The study procedure of initial screening through the administration of the Gates-MacGinitie Reading Tests, followed in appropriate cases with the Canadian Lorge-Thorndike Intelligence Tests or/and the Wechsler Intelligence Scale for Children - Revised isolated 27 specific reading disabled students. Of the 27 students, there were 18 boys and 9 girls.

TABLE 1

Student Population by Sex and Grade,
Eighteen Classrooms

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | Total |
| Girls | 75 | 70 | 80 | 225 |
| Boys | 81 | 72 | 74 | 227 |
| Total | 156 | 142 | 154 | 452 |

## THE PROCEDURE

Having defined specific reading disability as a discrepancy of two or more years between grade level and reading achievement in favor of grade level, which is not the result of environment or noted physical or mental defects including below average intelligence, data collection proceeded in nine steps.

Step One

The Researcher met with the principal of each of the six schools in the study and outlined the purpose of the study and the procedures to be followed. Permission to continue with the study was received from each principal. Appendix A, "Thesis Research: Haze Wescott," was employed as a discussion guide in the interviews with the principals. Following permission to proceed, each principal completed the form entitled, "Information Sheet: School" (Appendix B). Information received indicated that the six schools in the study varied in size of

professional staff from 15 to 21 with the student population per school at the grade four to six levels ranging from 57 to 179. All principals indicated that their schools had resource room personnel to work with students exhibiting learning difficulties. District personnel available to assist the classroom teacher included speech therapists and health unit nurses.

Step Two

The Researcher met with each of the eighteen reading teachers and outlined the procedure to be followed in the study. At the initial meeting, teachers were asked to complete the form entitled "Information Sheet: Teachers" (Appendix C). Thus the following data were collected.

A. Professional education of the teacher
   a) number of university courses in the teaching of reading
   b) number of university courses in special education

B. Professional experience of the teacher
   a) years of teaching

C. Specific reading disability cases in each teacher's classroom according to the teacher's own criteria.

Results indicated that the teaching staffs of the sample were well experienced with no teacher having less than three years of experience. Five of the 18 teachers had between 3 and 8 years of

experience with the remaining 13 teachers having taught 9 or more years. No training in special education was reported by 12 of the teachers, while 1 teacher indicated that she had taken more than 3 university special education courses. Nine teachers reported having taken two or fewer university courses in the teaching of reading. Eight teachers had taken between three to five courses in the teaching of reading, while one teacher had taken more than six reading courses.

Teachers identified 59 students when asked to identify specific reading disabled students using the teacher's own criteria.

Table 2 categories the 59 students according to sex and grade.

TABLE 2

Students Identified as Specific Reading Disabled According to Each Teacher's Own Criteria

| | Grade Level | | | Total |
|---|---|---|---|---|
| | 4 | 5 | 6 | |
| Boys | 16 | 6 | 18 | 40 |
| Girls | 8 | 3 | 8 | 19 |
| Total | 24 | 9 | 26 | 59 |

Step Three

Approximately one week after the initial interview, each teacher again met with the Researcher. During this interview the form "Checklist: Student" (Appendix D) was completed by the Researcher for each child that was identified by the teacher in Step Two as being

"specific reading disabled." This information was used to establish the criteria each teacher employed in identifying specific reading disabled children.

Step Four

Having completed the form "Checklist: Student" for each student, the teacher was then asked to complete the form entitled "Identification: Students" (Appendix E). In completing this form, the teacher was free to use any information she/he had collected in her/his work with the class. The form "Identification: Students" asked each teacher to list the students in her/his reading class that exhibited the characteristics of specific reading disability as defined in the study. The eighteen teachers identified 42 students whom they believed met the definition. Table 3 provides data by sex and grade for the 42 students.

TABLE 3

Teacher Identification of Reading Disabled Students
Using the Definition of the Study

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | Total |
| Boys | 1 | 13 | 9 | 23 |
| Girls | 4 | 8 | 7 | 19 |
| Total | 5 | 21 | 16 | 42 |

Step Five

Preceding the first interview, the County of Lethbridge had administered the Gates-MacGinitie Reading Tests, Canadian Edition, Level D, Form 2, to all their grades four, five and six students. The Researcher made arrangements for the same test to be administered to the eight sample classes in the Pincher Creek School Division.

Tests results indicated that 62 students were reading two or more years below grade level (Appendix I). Table 4 summarizes the findings according to sex and grade level.

TABLE 4

Identification of Students Two or More Years Below Grade Level Using Gates-MacGinitie Reading Scores

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | Total |
| Boys | 5 | 11 | 18 | 34 |
| Girls | 7 | 10 | 11 | 28 |
| Total | 12 | 21 | 29 | 62 |

Comparison of the results of the Gates-MacGinitie Reading Tests and the student's grade level were used to exclude from further study those students who did not exhibit a discrepancy of two or more years between grade level and reading achievement in favor of grade level.

Step Six

At this point the form "Exclusion: Student" (Appendix F) was completed for each student not excluded in Step Five. Thus, additional students were excluded who did not qualify as specific reading disabled due to one or more of the following conditions:

A. English not being the predominant language spoken in the home;

B. Being absent from school more than 20 per cent of the time over the last two years;

C. Having attended more than three different schools in the last two years and the family breadwinner having been unemployed for more than a week in the last year;

D. A major behavioral problem that is likely interfering with reading achievement;

E. An uncorrected serious hearing or visual loss.

The collected data led to seven boys being excluded at this point, four boys under condition "A", English not being the predominant language spoken in the home and three boys under condition "C", having attended more than three schools in the last two years, and the breadwinner having been unemployed for more than a week in the last year. Five girls were excluded from the study. One girl was excluded under condition "A", three girls under condition "C", and one girl because of a major behavioral problem, condition "D".

The sample of possible specific reading disabled students had now declined from 62 to 50 as outlined in Table 5.

TABLE 5

Students Two Years Below Grade Level in Reading after Exclusion of Students Whose Possible Reading Difficulties may be Caused by Environmental or Physical Behavior

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | Total |
| Boys | 4 | 9 | 14 | 27 |
| Girls | 5 | 8 | 10 | 23 |
| Total | 9 | 17 | 24 | 50 |

Step Seven

Each of the 50 students identified in Step Six took home a letter requesting parental permission for their child to continue in the study (Appendix G). The parents of a grade 4 child and 2 grade 5 children asked that their children not participate in the study. This resulted in 1 grade 4 boy, 1 grade 5 boy and 1 grade 5 girl being dropped from the study at this point. Thirty-one of the 47 remaining students were administered, in small group settings, the Canadian Lorge-Thorndike Intelligence Tests, Multi-Level Edition. Children receiving a composite intelligence score, average of the Verbal and Non-Verbal batteries, above 92 were identified as having at least average intelligence and thus were identified as specific reading disabled (Wright,

1967). Students receiving a composite score below 93 were administered an individual intelligence test, Wechsler Intelligence Scale for Children - Revised. A student receiving a Full Scale score above 89 was accepted as falling within the definition of the study (Wechsler, 1974). The 16 students that did not write the Canadian Lorge-Thorndike Intelligence Tests had either recently been administered the Wechsler Intelligence Scale for Children - Revised or, because of not being included in the group settings, were administered the WISC - R without taking the Canadian Lorge-Thorndike Intelligence Tests (Appendix J).

Table 6 outlines the grade placement and the sex of the 27 students identified according to all criteria of the study definition as being specific reading disabled.

TABLE 6

Students Meeting the Criteria of the Study Definition for Specific Reading Disability

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | Total |
| Boys | 3 | 6 | 9 | 18 |
| Girls | 1 | 5 | 3 | 9 |
| Total | 4 | 11 | 12 | 27 |

Step Eight

Students identified as specific reading disabled in Step Seven

were compared with the teacher lists from Steps Two and Four.

Step Nine

To complete the data collection procedure, each reading teacher was asked to complete a form entitled, "Program Sheet: Student" (Appendix H) for each student identified by the reading teacher, or by the study procedure, or both, as being "specific reading disabled."

## STANDARDIZED MEASURING INSTRUMENTS

The Gates-MacGinitie Reading Tests, Canadian Edition, Form D, was used to provide a grade equivalent reading score for comparison with grade placement. This test consists of the following two subtests: Vocabulary and Comprehension.

The Vocabulary subtest requires the matching of a word with the correct synonym among five choices. This section contains 45 items with a time limit of 20 minutes.

The Comprehension subtest involved 16 passages of varying lengths, and a total of 43 questions about these passages. The passages include selections from various literary works and subject-matter fields. Some of the questions about these passages require an understanding of information that is explicitly stated in the passage; others require an understanding of information that is only implicit in the passage.

Norms for the Gates-MacGinitie Reading Tests, Canadian Edition, were developed from the results of testing 46,000 students throughout the ten provinces and the Yukon. Between 3,000 and 4,500

students were tested at each grade level.

The sampling design was based on population and school enrollment figures published by "Statistics Canada." The sample was drawn so that each province was proportionally represented on the basis of its total school enrollment. As well, each province was stratified according to rural and urban population.

In developing the Gates-MacGinitie Reading Tests, Form D, the following steps were taken to assure test validity for most school reading programs.

(a) Prior to selection of items for the final tests, all items were examined by a group of Canadian educators for the appropriateness to Canadian education.

(b) Vocabulary words were selected from a special study of words in 16 commonly used reading series for grades 1, 2 and 3, and from recognized lists of words frequently used in school reading materials.

(c) Content of Comprehension passages was chosen according to a plan that specified the proportion of natural science, social science, humanities, and narrative material for each test.

(d) All passages were written in standard English. Approximately twice the number of items needed for the test was developed for an extensive tryout (MacGinitie, 1980).

Referring to test reliability the Manual states:

> Kuder-Richardson Formula 20 reliability coefficients were computed for each test level from the Canadian standardization data. The K-R 20 coefficients ranged from 0.85 to 0.94 for Vocabulary and from 0.85 to 0.92 for Comprehension (MacGinitie, 1980:IV).

The Canadian Lorge-Thorndike Intelligence Tests, Multi-level Edition, Form 1, were employed as a group intelligence test. The Canadian Lorge-Thorndike Tests have a separate level for each of the elementary grades, three to seven (Levels A - E). Each level consists of two separate batteries, Verbal and Nonverbal. The Verbal Battery consists of five subtests: vocabulary; verbal classification; sentence completion; arithmetic reasoning; and verbal analogy. The Nonverbal Battery uses items which are either pictorial or numerical. It contains three subtests involving pictorial classification, pictorial analogy, and numerical relationships. The subtests yield an estimate of scholastic aptitude not directly dependent upon ability to read. Each battery yielded an intelligence quotation which, for this study, was averaged to give a single composite score.

The Canadian Lorge-Thorndike Intelligence Tests, Form I, Level A-E, were standardized in October and November of 1966. The students forming the standardization sample were drawn, using stratified random selection procedure, from English speaking schools. Between 4,000 and 5,000 students were tested at each grade level, with all ten provinces participating in the program in proportion to population size. Odd-even reliability coefficients were developed on

representative single-grade samples from the standardization program. Coefficients for the Verbal Battery and the Nonverbal Battery, Levels B, C and E, range from .911 to .930. Though validity data are not available for the Canadian Lorge-Thorndike Intelligence Tests, studies with similar forms of the Lorge-Thorndike Tests in the United States reported correlations with the Standord-Binet and the WISC in the high 60's and low 70's (Wright, 1967).

The revised Wechsler Intelligence Scale for Children has been designed as an individual test of general intelligence. The WISC-R consists of six tests on the Verbal Scale and six tests on the Performance Scale. A Verbal intelligence quotient and a Performance intelligence quotient are calculated, as well as a Full Scale score.

In developing the Wechsler Intelligence Scale For Children - Revised "...a stratified sampling plan was adopted to insure that the normative sample would include representative propositions of various classes of children representative of the United States of America" (Wechsler, 1974, p. 17). The standardized sample included 200 children in each of 11 age groups from 6 1/2 through 16 1/2 years.

Referring to test reliability, the manual states "...that the Verbal, Performance, and Full Scale I.Q.'s have high reliabilities across the entire age range, the average coefficients being .94, .90 and .96, respectively. The reliabilities for the individual tests are quite satisfactory, with the average coefficients ranging from .77 to .86 for the Verbal tests, and from .70 to .85 for the Performance

tests. Only six coefficients in the entire table fall below .65, and only one of these is less than .60 (.57 for the supplementary Mazes test at age 16 1/2)" (Wechsler, 1974, p. 27).

In this study the Full Scale I.Q. was employed in the identification of specific reading disability cases.

## DATA COLLECTION FORMS

In the process of data collection, a number of forms were employed. These forms were constructed for this study to aid in the standardization of the data collected.

"Information Sheet: School" (Appendix B) was completed in discussion with each school principal. The information collected gave an indication of the size of school through the number of professional staff employed and the number of students enrolled in the upper elementary grades, but more important for this study, the availability of personnel to assist the classroom teacher was ascertained. If, as the literature suggests (Mouley and Grant, 1956; Fry, 1959; Lovell, Byrne and Richardson, 1963), specific reading disabled students often require individual or small group remedial reading instruction, the opportunity for teacher referral to specialized assistance is of paramount importance.

"Information Sheet: Teacher" (Appendix C) was completed by each teacher. Completion of this form supplied information relative to each teacher's training and experience, as well as the teacher's identification of specific reading disability cases according to that

teacher's criteria. Since the teacher is likely to be the professional who refers children for specialized help (Keogh, Tchir and Windeguth-Benn, 1974; Carter and McGinnis, 1970) or will alter the classroom program to meet the needs of the specific reading disabled student, the teacher's selection criteria are crucial for special programming. This study compared teacher criteria with a definition developed from the research literature (Leppmann, 1968; Clements, 1966; Carter and McGinnis, 1970).

Closely connected with the use of the "Information Sheet: Teacher" was the form, "Checklist: Students" (Appendix D). This form was constructed to tabulate the characteristics which the reading teachers used in identifying the specific reading disabled student. A "Checklist: Students" form was completed for each student identified by the teacher as being specific reading disabled according to that teacher's criteria. Through an individual interview with the teacher, the Researcher explored the characteristics that the teacher had identified when a student was listed as specific reading disabled. Six characteristics were checked for each student. Characteristics included reading retardation with at least average intellectual ability, economic conditions, school attendance, behavior problems, hearing impaired, vision impaired, plus any other characteristics that the teacher felt might be related to the reading difficulty. Having considered the identified cases and other information available to the teacher, each teacher's criteria for a student being identified as

specific reading disabled were recorded.

The form "Identification: Students" (Appendix E) presented the study's definition for specific reading disability and asked the teacher to list students in her/his classroom who fit the definition.

"Exclusion: Student" (Appendix F) was completed by the Researcher both through an interview with each school principal, or his delegate, and an examination of each student's cumulative record. The form identified six characteristics that could explain a discrepancy of two or more years between a student's grade equivalent score on the Gates-MacGinitie Reading Tests and his/her grade level in favor of grade level. One characteristic, English not being the predominant family language, has been identified by Spache (1976) and Philion and Galloway (1969) as being related to reading retardation, while a second characteristic, poor school attendance, would suggest that the student has not had the same opportunity as other children to learn to read. Poor school attendance was set at more than 20 per cent absence over the last two years (Department of Education, 1955). The findings of Spache (1966) and Morris (1966) support the third characteristic, frequent school changes with unemployment of the breadwinner, as having a retarding effect on reading achievement. Major behavioral problems, a fourth characteristic, only excluded a student from the study if the problems were of such severity as to distract either from the child's ability to obtain a relevant score on the Gates-MacGinitie Reading Tests or interfered with the reading process

itself. Students with an uncorrected serious hearing loss, characteristic five, or/and an uncorrected serious vision loss, characteristic six, were also excluded from the study (Bateman, 1963; Leppmann, 1968; Spache, 1976; Hammill and Larsen, 1974).

For the final stage of data collection, each reading teacher completed the form "Program: Student" (Appendix H). This form asked the teacher to indicate the program changes which had occurred for each child identified by the reading teacher or/and by the study as specific reading disabled. As well as allowing the teacher an open response, the form asked if any of the following had occurred:

Individual regular classroom instruction;

Small group regular classroom instruction;

Referral to a specialized teacher for reading instruction.

The four forms that each teacher completed were each preceded by a short meeting with the Researcher where instructions for the completion of the appropriate form was outlined. The form, "Exclusion: Student" was completed by the Researcher.

## DATA ANALYSIS

The grade equivalent scores from the Gates-MacGinitie Reading Tests, Canadian Edition, Level D, Form 2, were compared with the actual grade levels of the student population of the eighteen classes that formed the sample for the study. Students that exhibited a discrepancy of two or more years between their two scores, with the actual grade level score being the higher of the two scores, were

considered possible specific reading disability cases. Cases were then excluded where there was evidence that the reading difficulty may be the result of environment, physical or mental defects.

Chi square tests were employed to discover associations between teacher characteristics and the criteria teachers used in identifying specific reading disability cases, as well as checking for teachers' effectiveness in identifying the specific reading disabled child where an operational definition was supplied.

Where the expected frequencies were less than 5 in 2 x 2 tables "Yates correction for continuity" was employed (Ferguson, 1966, p. 207).

Frequency tables were employed for the tabulation of program changes for the specific reading disabled students. Percentages were calculated. As well, chi square tests were employed to discover associations between grade level and program changes.

## SUMMARY

In this chapter, the selection of the sample, data collection procedure, the standard measures used, data collection forms, and the techniques used to analyze the data, all have been described.

# CHAPTER IV

## STATISTICAL ANALYSIS

In this chapter the statistical results of the study are presented. The data are analyzed and interpreted according to the questions listed in Chapter I.

The five per cent level of confidence has been selected to test for significance of results. The level of confidence upon which the significance is accepted or rejected depends upon the type of error the experimenter is most willing to accept (Garrett, 1966). A low level of confidence such as .10 is likely to result in a significance of difference which is actually not significant. A high level of confidence such as .001 may result in rejection of a significant difference. By the selection of the .05 level of confidence, the likelihood of committing either error is reduced.

### QUESTION ONE

Question one asked, "Do the criteria that teachers use in identifying specific reading disability cases relate to specific teacher variables?" In answering this question, the Writer searched for relationships between the teacher characteristics of number of university courses in reading, number of university courses in special education, years of teaching, and the teacher's use of various student characteristics in identifying a student as specific reading disabled. Student characteristics included a significance reading retardation

with at least average intellectual ability, economic level of family and physical behavior.

The teacher variables of university training in reading instruction, university training in special education and years of teaching experience were selected arbitrarily by the Researcher. The decision was based on the belief that university training and classroom experience may be associated with knowledge related to SRD students. The 18 teachers who formed the sample for this study reported teaching experience ranging from 3 years to 20 plus years. Formal university training in special education was generally lacking with 12 teachers having taken no university courses in special education and 5 of the remaining 6 teachers having taken 1 to 3 courses. Teachers generally had taken more courses in the teaching of reading than in special education with nine teachers having taken three or more courses in reading instruction.

In identifying student characteristics which teachers use for identification of SRD cases, the 18 teachers listed characteristics that they considered in the identification process. Analysis of the data indicated that the criteria could be grouped into three categories: significant reading retardation with at least average intelligence; economic level of family; and physical behavior.

The question, "Do the criteria that teachers use in identifying specific reading disability cases relate to specific teacher variables?" was rewritten in the form of nine null hypotheses. Null hypotheses

were employed since this study was neither a replication of an earlier study, nor did the review of the literature indicate sufficient evidence to suggest that directional hypotheses be used (Ferguson, 1966). Each hypothesis related one student characteristic with one teacher characteristic. A chi square test was employed to check for association between the two variables presented in each hypothesis. Where the expected frequencies were small, less than 5, for one degree of freedom "Yates correction" was employed (Ferguson, 1966, p. 207).

Hypothesis One

Hypothesis One, in null form states that there is no significant association between the number of university reading courses a teacher has taken and a teacher's identification of specific reading disabled students based on a significant reading retardation with at least average intellectual ability.

To test the data relative to null Hypothesis One, a 2 x 2 contingency table was constructed. A teacher's use of the characteristic of significant reading retardation with at least average intellectual ability was tabulated (I) yes or (II) no. The number of university courses in the teaching of reading which a teacher has taken was tabulated (a) fewer than 3, (b) 3 or more. Table 7 tabulates the results.

The chi square test indicated no relationship between the number of university courses in the teaching of reading a teacher has taken and the use of intellectual ability in identifying specific reading disabled children. Thus the null hypothesis is supported.

TABLE 7

Association Between the Number of University Reading Courses a Teacher has Taken and a Teacher's Identification of Specific Reading Disabled Students based on a Significant Reading Retardation with at Least Average Intellectual Ability

| Use of Intellectual Ability | Number of Reading Courses | |
|---|---|---|
| | 0 - 2 | 3+ |
| Yes | 2 | 1 |
| No | 7 | 8 |

N = 18

$X^2$ = .00

df(1) = 3.84 at .05 level of significance

One might postulate that the lack of significance is due to one of two factors. First, the classroom reading teacher may have no access to intelligence quotient scores. In the case of the two districts forming the sample, neither district-wide nor school-wide intelligence tests were given. Second, teachers may not have seen intelligence quotient scores as being particularly important in identifying children with reading problems.

Hypothesis Two

Stated in null hypothesis form, Hypothesis Two reads that there is no significant association between the number of university special education courses a teacher has taken and a teacher's identification of specific reading disabled students based on a significant reading

retardation with at least average intellectual ability. To test null Hypothesis Two, a 2 x 3 contingency table was constructed. The teacher's use of the characteristic of significant reading retardation with at least average intellectual ability was tabulated (I) yes or (II) no. The number of university special education courses which a teacher has taken was tabulated (a) none, (b) 1 to 3, (c) more than 3.

The results are found in Table 8. The number of university special education courses was found to be unrelated to a teacher's considering a significant reading retardation with at least average intellectual ability as an identifying factor with specific reading disabled children.

TABLE 8

Association Between the Number of University Special Education Courses a Teacher has Taken and the Use of Significant Reading Retardation with at Least Average Intellectual Ability as an Identifying Factor

| Use of Intellectual Ability | University Special Education Courses | | |
|---|---|---|---|
| | 0 | 1-3 | 4+ |
| | 2 | 0 | 1 |
| | 10 | 5 | 0 |

N = 18

$X^2$ = 2.55

df(2) = 5.99 at .05 level of significance

Table 8 indicates that 12 of the 18 teachers have no university training in special education. For the other six teachers, the areas of study in special education, or the contents of the courses were not recorded.

No findings were located in the literature that correlated teacher special education training with using the knowledge of a child's intelligence quotient to identify that child as specific reading disabled. The findings here found no significant relationship, thus the null hypothesis is accepted.

Hypothesis Three

Hypothesis Three, in null form, states that there is no significant association between the number of years a teacher has taught and a teacher's identification of specific reading disabled students based on a significant reading retardation with at least average intellectual ability.

To test null Hypothesis Three, a 2 x 2 contingency table was constructed. The teacher's use of significant reading retardation with at least average intellectual ability was tabulated (I) yes or (II) no. The number of years a teacher has taught was tabulated (a) 0 to 8 years, (b) over 8 years (Table 9).

TABLE 9

Association Between Number of Years a Teacher has Taught and a Teacher's Consideration of a Significant Reading Retardation with at Least Average Intellectual Ability in the Identification of Specific Reading Disabled Students

| Use of Intellectual Ability | Years of Teaching Experience 0-8 | 9+ |
|---|---|---|
| Yes | 2 | 1 |
| No | 3 | 12 |

N = 18

$X^2$ = .89

df(1) = 3.85 at .05 level of significance

The chi square test indicated an association of .89 between the number of years a teacher has taught and the use of intellectual ability in identifying specific reading disabled children. This figure is well below the .05 level of confidence, thus null Hypothesis Three is supported. In fact, what relationship does exist appears to be inversely related to years of teaching experience. Two of the 5 teachers with less than 9 years experience employed the variable of a significant reading retardation with at least average intellectual ability while only 1 teacher of the 13 that had more than 8 years teaching experience used the discrepancy factor as an identifier of a specific reading disabled student.

Hypothesis Four

In null form, Hypothesis Four states that there is no significant association between the number of university reading courses a teacher has taken and the use of the economic level of a child's family in categorizing the child as specific reading disabled.

To test null Hypothesis Four, a 2 x 2 contingency table was constructed. The teacher's use of the economic level of a child's family was tabulated (I) yes or (II) no. The number of university reading courses which a teacher has taken was recorded as (a) fewer than 3, (b) 3 or more. A chi square test employing "Yates correction for continuity" was employed to check for significance (Table 10).

TABLE 10

Association Between the Number of University Reading courses a Teacher has Taken and a Teacher's Use of the Economic Level of a Child's Family as an Identifying Factor in the Identification of Reading Disabled Students

| Use of Economic Level | University Reading Courses 0-2 | 3+ |
|---|---|---|
| Yes | 2 | 2 |
| No | 7 | 7 |

N = 18

$X^2$ = .00

df(1) = 3.84 at the .05 level of significance

No significant association was found between the number of university courses in the teaching of reading which a teacher has taken and use of the economic level of a child's family as an identifying factor. Fourteen of the eighteen teachers disregarded the economic level of the child's family when identifying the specific reading disabled student. On the other hand, 22 per cent of the teachers in this sample saw a child's economic conditions as a factor in specific reading disability.

Hypothesis Five

Hypothesis Five, stated in null form, reads that there is no significant association between the number of university special education courses a teacher has taken and the use of the economic level of a child's family in categorizing the child as specific reading disabled.

To test null Hypothesis Five, a 2 x 3 contingency table was constructed. The teacher's use of the economic level of a child's family was tabulated (I) yes or (II) no. The number of university special education courses which a teacher has taken was tabulated (a) none, (b) 1 to 3, (c) more than 3.

The results are found in Table 11. While the majority of teachers, 78 per cent, did not associate a child's economic level with specific reading disability, the 22 per cent of teachers who did make an association, had not taken a course in special education. No significant association was found, the null Hypothesis Five is accepted.

TABLE 11

Association Between the Number of University Special Education Courses a Teacher has Taken and a Teacher's Use of the Economic Level of a Child's Family as an Identifying Factor in the Identification of Reading Disabled Students

| Use of Economic Level | University Special Education Courses 0 | 1-3 | 4 |
|---|---|---|---|
| Yes | 4 | 0 | 0 |
| No | 8 | 5 | 1 |

N = 18

$X^2$ = 2.56

df(2) = 5.99 at .05 level of significance

Hypothesis Six

In null hypothesis form, Hypothesis Six states that there is no significant association between the number of years a teacher has taught and the use of the economic level of a child's family in categorizing the child as specific reading disabled. To test null Hypothesis Six, a 2 x 2 contingency table was constructed. The teacher's use of the economic level of a child's family was tabulated (I) yes or (II) no. The number of years a teacher has taught was tabulated (a) 0 to 8 years, (b) 9 or more. A chi square test, employing a Yates Correction for continuity, was employed to check for significance (Table 12).

TABLE 12

Association Between the Number of Years a Teacher has Taught and a Teacher's Use of the Economic Level of a Child's Family as an Identifying Factor in the Identification of Reading Disabled Students

| Use of Economic Level | Years of Teaching Experience 0-8 | 9+ |
|---|---|---|
| Yes | 1 | 3 |
| No | 4 | 10 |

N = 18

$X^2$ = .24

df(1) = 3.84 at .05 level of significance

The chi square test showed an association of .24 between teacher experience and use of economic level as an identifying factor. This value falls at about the 64 per cent level. The evidence does not justify the rejection of Hypothesis Six. It should be noted that although Hypothesis Six was not rejected, there is some relationship between years of teacher's experience and the use of the knowledge of a child's economic level as an identifying factor for specific reading disability. Of the four teachers that used economic level as an identifying factor, three teachers had nine or more years of experience. These same teachers had no university courses in special education (Table 11).

The next three hypotheses compare teacher characteristics with the teacher's categorization of a child as specific reading disabled

because of that child's physical behavior.

Hypothesis Seven

Hypothesis Seven, in null hypothesis form, states that there is no significant association between the number of university reading courses a teacher has taken and the categorization of a child as specific reading disabled because of that child's physical behavior. To test null Hypothesis Seven, a 2 x 2 contingency table was constructed. The categorization of a child as specific reading disabled because of physical behavior was tabulated (I) yes or (II) no. The number of university reading courses a teacher has taken was tabulated (a) fewer than 3, (b) 3 or more. Table 13 lists 12 of the 18 teachers as not using a child's physical behavior as a factor in identification of specific reading disabled cases.

TABLE 13

Association Between the Number of University Reading Courses a Teacher has Taken and a Teacher's use of a Child's Behavior as an Identifying Factor in the Identification of Reading Disabled Students

| Physical Behavior | University Reading Courses 0-2 | 3+ |
|---|---|---|
| Yes | 1 | 5 |
| No | 8 | 4 |

N = 18

$X^2$ = 2.25

df(1) = 3.84 at .05 level of significance

A chi square test employing Yates correction for continuity showed an association between a child's physical behavior relating to identification as specific reading disabled and the number of university reading courses a teacher has taken as 2.25, thus the null hypothesis is supported.

Hypothesis Eight

Null Hypothesis Eight states that there is no significant association between the number of university special education courses a teacher has taken and the categorization of a child as specific reading disabled because of that child's physical behavior. To test null Hypothesis Eight, a 2 x 3 contingency table was constructed. The categorization of a child as specific reading disabled because of physical behavior was tabulated (I) yes or (II) no. The number of university special education courses a teacher has taken was tabulated (a) none, (b) 1 to 3, (c) more than 3. Results are shown on Table 14.

The data presented in Table 14 clearly illustrates a lack of association between the categorization of a child as specific reading disabled because of physical behavior and the number of university special education courses a teacher has taken. Considering the education of the teachers, plus the high level of experience, one might hypothesize that the special education courses taken by the teachers were under-graduate courses covering a wide range of topics and possibly some time ago. Thus, it may well be that few, if any, of the courses were directly related to the field of reading disability.

TABLE 14

Association Between the Number of University Special Education Courses a Teacher has Taken and a Teacher's Use of a Child's Behavior as an Identifying Factor in the Identification of Reading Disabled Students

| Physical Behavior | University Special Education Courses 0 | 1-3 | 4+ |
|---|---|---|---|
| Yes | 4 | 2 | 0 |
| No | 8 | 3 | 1 |

N = 18

$X^2$ = .58

df(2) = 5.99 at .05 level of significance

Hypothesis Nine

When stated in null form, Hypothesis Nine reads that there is no significant association between the number of years a teacher has taught and the categorization of a child as specific reading disabled because of physical behavior. To test null Hypothesis Nine, a 2 x 2 contingency table was constructed. The categorization of a child as specific reading disabled because of physical behavior was tabulated (I) yes or (II) no. The number of years a teacher has taught was tabulated (a) 0 to 8 years, (b) 9 or more. The results, Table 15, indicated no significant association between the two variables, thus null Hypothesis Nine is supported.

TABLE 15

Association Between the Number of Years a Teacher has Taught and a Teacher's Use of a Child's Behavior as an Identifying Factor in the Identification of Reading Disabled Students

| Physical Behavior | Years of Teaching Experience 0-8 | 9+ |
|---|---|---|
| Yes | 2 | 4 |
| No | 3 | 9 |

N = 18

$X^2$ = .03

df(1) = 3.84 at .05 level of significance

In summary, the analysis of the data pertaining to Question One, "Do the criteria that teachers use in identifying specific reading disability cases relate to specific teacher variables?" discovered one common criterion, the exhibited reading problem, among the many criteria teachers use for identification of SRD. The criterion of significant reading retardation with at least average intellectual ability was employed by a small percentage, 17 per cent, of the teachers.

Teachers generally don't consider the economic level of a student's family as a criterion in identifying the specific reading disabled student. Twenty-two per cent of the teachers in the sample reported considering economic level when identifying the specific

reading disabled. While teachers' use of the economic level showed no significant relationships with any of the three teacher variables, courses in special education, courses in the teaching of reading, or years of experience, one should still be aware that a percentage of teachers, when referring children for reading help, believe that economic level of the family is a factor in specific reading disability.

One-third of the teachers in the sample stated that physical behavior was a factor to be considered when identifying specific reading disabled children. Chi square tests found no significant relationships between the categorization of a child as specific reading disabled because of physical behavior and any of the three teacher variables.

## QUESTION TWO

Question Two asked, "Using the operational definition of this study for specific reading disability, how effective are regular classroom reading teachers in identifying the specific reading disabled child?"

When asked to identify specific reading disabled students in their reading classes according to the teacher's own definition of specific reading disability, the 18 teachers in the sample identified 59 students. Of these 59 students, there were 19 girls and 40 boys (Table 2). However, when the teachers were asked to identify students according to the study definition which states, "A student whose reading achievement is two or more years below grade level, which is not the result

of environment or noted physical or mental defect, including below average intelligence," 42 students were listed including 19 girls and 23 boys (Table 3). A comparison of the student population listed on the two data collection forms shows that of the 59 students identified as reading disabled according to the teachers' own criteria, 15 were identified by the same teachers as being reading disabled according to the study definition (Table 16).

TABLE 16

A Comparison of Student Cases Identified as Specific Reading Disabled According to Teacher Criteria and Teacher Identification Using the Study Definition

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | |
| Teacher Criteria Only | 20 | 7 | 17 | 44 |
| Teacher Identification According to Study Definition Only | 1 | 19 | 7 | 27 |
| Students Listed in Both of the Above Categories | 4 | 2 | 9 | 15 |
| | | | | N = 86 |

While 19 girls were identified by the teachers as meeting both teacher definition and study definition as being specific reading disabled, Table 17 shows little overlap in students identified by the two criteria.

TABLE 17

Comparison of Girls Identified as Specific Reading Disabled According to Teacher Criteria and Teacher Identification Using the Study Definition

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | |
| Teacher Criteria Only | 4 | 3 | 4 | 11 |
| Teacher Identification According to Study Definition Only | 0 | 8 | 3 | 11 |
| Students Listed in Both of the Above Categories | 4 | 0 | 4 | 8 |
| | | | N = 30 | |

Of the two lists of 19 girls each, only eight appeared on both lists. A comparison of the lists of boys shows a similar diversity as summarized in Table 18.

TABLE 18

Comparison of Boys Identified as Specific Reading Disabled According to Teacher Criteria and Teacher Identification Using the Study Definition

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | |
| Teacher Criteria Only | 16 | 4 | 13 | 33 |
| Teacher Identification According to Study Definition Only | 1 | 11 | 4 | 16 |
| Students Listed in Both of the Above Categories | 0 | 2 | 5 | 7 |
| | | | N = 56 | |

Combining the two categories, teacher definition and teacher identification according to study definition, 30 girls were identified as fitting either one of the two categories or both. Of the 30 girls, eight names were on both lists, an overlap of 27 per cent. However, teachers identified 37 per cent of the total girls listed as meeting the criteria of the study definition but not the teachers' own definitions of specific reading disability. Table 18 shows a total male identification in all three categories of 56 names, 13 per cent of which appears on both the teachers' definitions of specific reading disabled and their identification of specific reading disability according to the study definition. Twenty-nine per cent, 16 names, were listed as meeting the criteria of the study definition but not the criteria of the teachers' definitions.

As reported in the analysis of the data for Question One, teachers clearly use different criteria from that of the study definition when identifying specific reading disabled children. A difference in criteria, which includes a wider range of reading difficulties, would explain the over-all higher percentage of children identified as specific reading disabled according to the teachers' definitions compared to the number identified as specific reading disabled according to the study definition, 13 per cent to 9 per cent. However, one might speculate that a two year retardation in reading, as defined in the study definition, would be such a severe reading problem that all children identified by teachers as being specific reading disabled

according to the study definition would also appear on the teacher list of specific reading disabled children no matter what that particular teacher's definition might be. But this was not the case. While there may be a number of explanations for this discrepancy, two possibilities are worth noting. It may well be that the specific reading disabled child, because of other attributes such as intellectual ability, is able to cover his/her poor reading performance and thus "get by" in the classroom or it may be that teachers don't have the tools to identify these children. This second possibility is considered in the analysis of the data related to Question Two.

As stated earlier and summarized in Table 3, teachers identified 42 students, 23 boys and 19 girls when asked to use the definition of the study to identify reading disabled students. Through the employment of standardized tests, study of cumulative records and staff interviews, 27 students, 18 boys and 9 girls out of the total student sample of 452 students, were identified who met all the criteria of the study definition. That is, 27 students were reading two or more years below grade level and the reading retardation could not be explained through environment or physical or mental causes including below average intelligence. The two lists included 10 names that appeared on both lists and 49 names which were either identified by the teacher or by research, but not by both as being specific reading disabled. Table 19 shows the distribution according to grade level of the students identified in the two categories.

TABLE 19

A Comparison of Student Cases Identified as Specific Reading Disabled by Teachers Employing Study Definition and Actual Cases According to Study Procedure

| | Grade Level | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | |
| Teacher Identification of SRD Students According to Study Definition | 3 | 19 | 10 | 32 |
| Specific Reading Disabled Cases Meeting Study Characteristics | 2 | 9 | 6 | 17 |
| Students Listed in Both Categories | 2 | 2 | 6 | 10 |
| | | | N = 59 | |

Seventeen per cent of the specific reading disabled children were accurately identifed by their teachers as specific reading disabled. When these data were analyzed according to sex (Table 20 and Table 21) it was found that teachers over-estimated both the number of boys and girls that fell under the study definition but were more accurate in identifying boys as specific reading disabled.

TABLE 20

Comparison of Girls, by Grade, Identified as Specific Reading Disabled by Teacher employing Study Definition and Actual Cases According to Study Procedure

| | Grade Level 4 | 5 | 6 | |
|---|---|---|---|---|
| Teacher Identification of Female SRD Students According to Study Definition | 3 | 8 | 6 | 17 |
| Specific Reading Disabled Female Cases Meeting Study Characteristics | 0 | 5 | 2 | 7 |
| Students Listed in Both Categories | 1 | 0 | 1 | 2 |
| | | | N = 26 | |

TABLE 21

Comparison of Boys, by Grade, Identified as Specific Reading Disabled by Teachers Employing Study Definition, and Actual Cases According to Study Procedure

| | Grade Level 4 | 5 | 6 | |
|---|---|---|---|---|
| Teacher Identification of Male SRD Students According to Study Definition | 0 | 11 | 4 | 15 |
| Specific Reading Disabled Male Cases Meeting Study Characteristics | 2 | 4 | 4 | 10 |
| Students Listed in Both Categories | 1 | 2 | 5 | 8 |
| | | | N = 33 | |

Of the nine girls identified by the Researcher as being specific reading disabled, seven were not listed by their teacher, while 10 of the 18 boys were missed. On the other hand, seventeen names, 65 per cent, of the female students identified by their teachers as meeting the study criteria, did not qualify as specific reading disabled.

Four null hypotheses examine teacher characteristics and identification of the specific reading disabled student in more detail.

Hypothesis Ten

Hypothesis Ten, stated in null form, reads that there is no significant association between the number of university reading courses a teacher has taken and a teacher's ability to identify specific reading disabled cases. To test the data relative to null Hypothesis Ten, a 2 x 3 contingency table was constructed. The number of university reading courses a teacher has taken was tabulated in the following categories: (I) fewer than 3, (II) 3 or more. The student categories were tabulated (a) correctly identified, (b) incorrectly identified, (c) missed identification. Results are shown in Table 22.

TABLE 22

Association Between the Number of University Reading Courses a Teacher has Taken and the Teacher's Accuracy in Identifying Reading Disabled Students using the Study Definition

| Reading Courses | Identification | | |
|---|---|---|---|
| | Correct | Incorrect | Missed |
| 0 - 2 | 8 | 13 | 9 |
| 3+ | 2 | 19 | 8 |

N = 59 students 18 teachers

$X^2$ = 4.79

df(2) = 5.99 at .05 level of significance

The data presented in Table 22 illustrate a lack of association at the .05 level of significance between the number of university courses a teacher has taken in the teaching of reading and accuracy of identification of specific reading disabled students. The chi square value of 4.79 is significant at the .10 level of significance. While this score is below the level of confidence set for this study, there does appear to be some relationship between the number of reading courses a teacher has taken and the identification of specific reading disabled students. A visual examination of the data in Table 22 shows an inverse relationship. That is, the fewer the number of university reading courses a teacher has taken, the more accurate the identification of specific reading disabled students. It may well be that other

variables, not number of reading courses, were affecting the results. This hypothesis is checked in the next three null hypotheses.

Hypothesis Eleven

Stated in null hypothesis form, Hypothesis Eleven reads that there is no significant association between the number of university special education courses a teacher has taken and a teacher's ability to identify specific reading disabled students. To test null Hypothesis Eleven on the data, a 3 x 3 contingency table was constructed. The number of university special education courses was tabulated as (I) none, (II) 1 to 3, (III) more than 3. The student categories were (a) correctly identified, (b) incorrectly identified, (c) missed identification. Table 23 was constructed to tabulate the results and to test for significance.

TABLE 23

Association Between the Number of University Special Education Courses a Teacher has Taken and the Teacher's Accuracy in Identifying Reading Disabled Students using the Study Definition

| Special Education Courses | Identification | | |
|---|---|---|---|
| | Correct | Incorrect | Missed |
| 0 | 7 | 19 | 16 |
| 1-3 | 1 | 11 | 0 |
| 4+ | 2 | 2 | 1 |

N = 59 students 18 teachers
$X^2$ = 10.85
df(4) = 9.49 at .05 level of significance

The chi square test indicated an association of 10.85 between the number of university special education courses a teacher has taken and accuracy of identification of special reading disabled students. This figure is well above the .05 level of confidence, thus null Hypothesis Eleven is rejected.

There is a direct relationship between teacher training in special education and the ability to identify specific reading disability cases. A further examination of the data indicates that the teachers with some training in special education had a lower rate of missed identification of cases. However, rates of incorrectly identifying a student as specific reading disabled were high for all categories with percentages varying from 50 to 92 when compared to cases correctly identified.

Hypothesis Twelve

Hypothesis Twelve, stated in null form, reads that there is no significant association between the number of years a teacher has taught and a teacher's ability to identify specific reading disabled cases.

To test null Hypothesis Twelve on the data, a 3 x 3 contingency table was constructed. The number of years a teacher has taught was tabulated (I) 0 to 8 years, (II) over 8 years. The student categories were (a) correctly identified, (b) incorrectly identified, (c) missed identification (Table 24).

TABLE 24

Association Between the Number of Years a Teacher has Taught and a Teacher's Accuracy in Identifying Reading Disabled Students According to the Study Definition

| Years of Teaching Experience | Identification | | |
|---|---|---|---|
| | Correct | Incorrect | Missed |
| 0 - 8 | 4 | 12 | 8 |
| 9+ | 6 | 20 | 9 |

N = 59 students 18 teachers

$X^2$ = .42

df(2) = 5.99 at .05 level of significance

The data presented in Table 24 demonstrate a lack of association between the number of years a teacher has taught and the accuracy with which teachers were able to identify specific reading disabled students within their classrooms.

Hypothesis Thirteen

Null Hypothesis Thirteen states that there is no significant association between the grade level at which the teacher instructs and the accuracy with which a teacher can identify specific reading disabled students. To test null Hypothesis Thirteen on the data, a 3 x 3 contingency table was constructed. Grade levels were tabulated as (I) grade 4, (II) grade 5, (III) grade 6. Students were categorized as (a) correctly identified, (b) incorrectly identified, (c) missed

identification (Table 25).

TABLE 25

Association Between the Grade being Taught and a Teacher's Accuracy in Identifying Specific Reading Disabled Students

| Grade Taught | Identification | | |
|---|---|---|---|
| | Correct | Incorrect | Missed |
| 4 | 2 | 3 | 2 |
| 5 | 2 | 19 | 9 |
| 6 | 6 | 10 | 6 |

N = 59 students 18 teachers

$X^2$ = 4.78

df(4) = 9.49 at .05 level of significance

The chi square test indicated an association of 4.78 between grade taught and accuracy of identification of specific reading disabled students. This figure falls at about the .30 level of probability, thus null Hypothesis Thirteen is supported. At grade levels four and six, as many cases were missed as were correctly identified. At grade level 5, 82 per cent of the cases were missed although it was at this level that the highest percentage of incorrectly identified cases were listed.

Another finding from the data might be noted at this point. While 27 cases of specific reading disability were substantiated among

the 452 subjects that were approximately evenly divided among grades 4, 5 and 6, the 27 cases, 6 per cent, were not evenly divided among the 3 grades. Eight per cent of the grade 5 and grade 6 sample population were identified as specific reading disabled, while approximately 3 per cent of the grade 4 sample population were classified as specific reading disabled. The data in Table 25 indicate that the 6 teachers at the grade 4 level also identified fewer reading disability cases, having listed a total of 5 students compared to 21 and 16 being identified at the grade 5 and 6 levels respectively.

In conclusion, data support the hypothesis that teachers are poor identifiers of specific reading disabled students. Of the 27 cases identified by the study as meeting the criteria of specific reading disability, teachers identified only 10 students. More girls than boys were missed, with teachers identifying 2 girls out of a possible 9, and 8 boys out of a possible 18 names.

On the other hand, teachers felt that many students met the study definition when, in fact, they did not. Thirty-two students, 17 girls and 15 boys, were incorrectly listed as specific reading disabled. Neither years of teacher experience, nor courses in reading instruction appeared to improve accuracy of identification, but teachers who had taken special education courses were significantly better at identifying the specific reading disabled student.

## QUESTION THREE

Question Three asked, "How are school reading programs altered for those students identified as specific reading disabled?"

In the collection of the data for Question Three, teachers were asked to complete a form indicating how the students' programs had been changed to meet the needs of specific reading disabled students (Appendix H). Forms were completed for 95 students who had been identified in one or more of the following three categories.

1. Specific reading disabled according to the teacher's own criteria.
2. Identified as specific reading disabled by the teacher according to the study definition.
3. Identified through the study as specific reading disabled.

Analysis of the data indicated that the program changes could be tabulated in seven categories.

1. No alteration of reading program.
2. Small group regular classroom instruction.
3. An individualized reading program conducted in the regular classroom by the regular reading teacher combined with small group regular classroom instruction.
4. Individualized reading program conducted in the regular classroom by the regular reading teacher.
5. Small group regular classroom instruction combined

with an individual or small group reading program conducted out of the classroom by a specialized teacher.

6. An individualized reading program conducted in the regular classroom by the regular reading teacher combined with an individual or small group reading program conducted out of the classroom by a specialized teacher.

7. An individual or small group reading program conducted out of the classroom by a specialized teacher.

The tabulation of the 95 students according to the seven program classifications is given in Table 26.

TABLE 26

Reading Program Changes for Students Identified as Specific Reading Disabled according to Teacher Criteria, or Teacher Identification by Study Definition, or Identification Through Study Procedure or Combination of all Three Categories

| | Grade | | |
|---|---|---|---|
| | 4 | 5 | 6 |
| No alteration of reading program | 5 | 11 | 21 |
| Small group regular classroom instruction | 9 | 10 | 2 |
| Individual regular and small group regular classroom instruction | 3 | 0 | 4 |
| Individual regular classroom instruction | 1 | 1 | 0 |
| Small group regular and specialized teacher instruction | 1 | 6 | 1 |
| Individual regular and specialized teacher instruction | 3 | 0 | 0 |
| Specialized teacher for reading instruction | 3 | 6 | 8 |
| | 25 | 34 | 36 |
| | | N = 95 | |

Overall, grade five teachers had the highest total percentage (24%) of students identified as specific reading disabled, with grade six teachers identifying just slightly fewer students (23%) and grade four teachers identifying considerably fewer students than the other two grades (16%). Of the 25 students identified in grade 4 as being specific reading disabled in at least one of the 3 possible categories, 20 students (80%) had their programs altered from the regular classroom program, while grade 5 teachers had identified 34 students and indicated that the reading programs had been altered for 23 of the students (68%). Grade six teachers indicated the lowest rate of reading program changes with 15 of the 36 students receiving some specialized programming (42%). Null Hypothesis Fourteen examples these data for a relationship between grade level and program alteration.

Hypothesis Fourteen

Hypothesis Fourteen, stated in null form, reads that there is no significant association between grade level and alteration of reading programs for students identified as SRD. To test the data relative to null Hypothesis Fourteen, a 3 x 3 contingency table was constructed. Grade levels were categorized as (I) grade 4, (II) grade 5, or (III) grade 6, while reading program changes were tabulated as (a) no alteration in programs, (b) in-classroom modification of program, or (c) out-of-classroom resource room assistance (Table 27).

TABLE 27

Summary of Reading Program Changes for Students Identified in all Categories as SRD

| Reading Program Changes | Grade 4 | Grade 5 | Grade 6 |
|---|---|---|---|
| No Alteration of Reading Programs | 5 | 11 | 21 |
| In-Classroom Modification of Program | 13 | 11 | 6 |
| Out-of-Classroom Resource Room Assistance | 7 | 12 | 9 |

N = 95

$X^2$ = 12.68

df(4) = 9.45 at .05 level of significance

A chi square test showed the association between grade level and alteration of the reading program to be 12.68. This is a significant association at the .05 level of significance. The fact that 80 per cent of grade 4 students had their reading programs altered is significantly higher than the program changes made at the grade 6 level.

Of the students who had reading program changes, the most common method of altering the program was in-class small group instruction. In-class small group instruction, without resource room help, was the program offered to 36 per cent of the grade 4 students, 29 per cent of the grade 5 students and 6 per cent of the grade six students. It should be pointed out that teachers may have fewer options than the

identified six alternatives when it comes to developing a reading program for a newly identified specific reading disabled student. Resource rooms with specialized teaching staff were working to capacity in all six sample schools. The highest percentage of students receiving specialized out-of-classroom instruction, 35 per cent, was occurring at the grade 5 level, with grade 4 and 6 having 28 per cent and 25 per cent respectively of their identified students receiving specialized out-of-classroom instruction.

Of the 95 students identified as specific reading disabled, 44 students were identified as specific reading disabled by the teachers according to their own criteria but not by the study procedure or by the teachers using the study definition alone (Table 28). While these

TABLE 28

Reading Program Changes for Students Identified as Specific Reading Disabled according to Teacher Criteria but not by the Study Procedure

| | Grade | | |
|---|---|---|---|
| | 4 | 5 | 6 |
| No alteration of reading program | 4 | 2 | 10 |
| Small group regular classroom instruction | 8 | 2 | 0 |
| Individual regular and small group regular classroom instruction | 4 | 0 | 3 |
| Individual regular classroom instruction | 1 | 0 | 0 |
| Small group regular and specialized teacher instruction | 0 | 0 | 1 |
| Individual regular and specialized teacher instruction | 2 | 0 | 0 |
| Specialized teacher for reading instruction | 2 | 1 | 4 |
| | 21 | 5 | 18 |

N = 44

44 students did not meet the study criteria for specific reading disability, they did meet the teacher criteria and, therefore, one might hypothesize that if reading program changes were to occur, this group of 44 students would likely receive those changes.

Hypothesis Fifteen examines the possibility that students identified as SRD by their teacher are more likely to have their reading programs modified than are children not so identified by their teachers.

Hypothesis Fifteen

Stated in null hypothesis form, Hypothesis Fifteen reads that there is no significant association between reading program changes and whether a student is identified by the teacher as SRD but does not meet the study criteria, or meets the study criteria but is not identified by the teachers as meeting their criteria or is identified both by the teacher and the study procedure as being specific reading disabled.

As outlined in Table 28, 44 students were identified as SRD according to teacher criteria but not by the study procedure. Thirteen students were identified as SRD by the study procedure but not by teachers using their own criteria (Table 29). Four of the thirteen students were in grade six. One, 25 per cent, of these grade six SRD students had not had his/her reading program altered. All eight students in grade five had their reading programs altered with two students receiving resource room assistance. The one student identified by the study procedure at the grade 4 level had not received a reading program change.

TABLE 29

Summary of Reading Program Changes of Students Identified as Specific Reading Disabled by Study Procedure but not by Teachers Using Their Own Criteria

| | Grade | | |
|---|---|---|---|
| | 4 | 5 | 6 |
| No alteration of reading program | 1 | 0 | 1 |
| Small group regular classroom instruction | 0 | 6 | 2 |
| Specialized teacher for reading instruction | 0 | 1 | 1 |
| Small group regular and specialized teacher instruction | 0 | 1 | 0 |
| | 1 | 8 | 4 |

N = 13

Fourteen students were found who met both the study criteria and teacher criteria for SRD (Table 30). Eight of the fourteen students were in grade six. Six, 75 per cent, of these grade six SRD students had not had their reading programs altered. One of the other two students was receiving a special in-class program while the other student received out-of-class specialized reading instruction. At grades four and five, three students at each grade met the criteria of being identified by both teacher criteria and study procedure as being specific reading disabled. All six students had their reading programs altered from that generally offered to other students. One student at each grade level was receiving regular classroom small group

instruction. The other two SRD students at both grade levels received either part or all of their reading instruction with a specialized teacher in a resource room setting.

TABLE 30

Reading Program Changes of Students Identified as Specific Reading Disabled by Teacher Criteria and by the Study Procedure

| | Grade | | |
|---|---|---|---|
| | 4 | 5 | 6 |
| No alteration of reading program | 0 | 0 | 6 |
| Small group regular classroom instruction | 1 | 1 | 0 |
| Individual regular and small group regular classroom instruction | 0 | 0 | 1 |
| Small group regular and specialized teacher instruction | 0 | 2 | 0 |
| Individual regular and specialized teacher instruction | 1 | 0 | 0 |
| Specialized teacher for reading instruction | 1 | 0 | 1 |
| | 3 | 3 | 8 |

N = 14

To test null Hypothesis Fifteen, a 2 x 3 contingency table was constructed. Student program changes were tabulated (I) yes or (II) no. Students identified as SRD were tabulated (a) identified by teacher but not by study procedure, (b) identified by study procedure

but not by teacher or (c) identified both by teacher and study procedure. Table 31 was constructed to tabulate the results and to test for significance.

TABLE 31

Association Between Student Reading Program Changes and Students Identification as SRD

| | Identification | | |
|---|---|---|---|
| Program Change | By Teacher but Not by Study | By Study but Not by Teacher | By Both Teacher & Study |
| Yes | 28 | 11 | 8 |
| No | 16 | 2 | 6 |

N = 71

$X^2$ = 2.60

df(2) = 5.99 at .05 level of significance

The chi square test indicated an association of 2.60 between program changes and whether a student was identified by the teacher or by the study procedure, or by both teacher criteria and study procedure, as being SRD. This figure falls about the .27 level of probability, thus Hypothesis Fifteen is supported.

All three categories indicate that a majority of students received modification of reading program. Of the 44 students identified by teacher criteria as being SRD, 10 students, 23 per cent were receiving out-of-classroom specialized reading instruction. A like

percentage, 23 per cent of the 13 students identified by the study but not by teacher criteria, was also receiving specialized reading instruction (Table 29). However, a lower percentage of SRD students, according to teacher criteria, had their programs changed than did children identified as SRD by the study but not by the teacher criteria, 63 per cent to 85 per cent. An examination of students not receiving any out-of-class assistance gave the following results. Eight of the 13 SRD students, 62 per cent, identified in the study only sample, had their in-class reading programs altered; whereas 18 students, 41 per cent, in the teacher criteria sample, had their in-class reading programs changed.

While a significant association between method of identification of SRD cases and program changes was not found, there is, as reported in Hypothesis Fourteen, a significant association between grade level and alteration of reading programs for the total sample of students identified as SRD. One might hypothesize that the program changes for the 44 students identified by teacher criteria is associated with the grade level of the student. Hypothesis Sixteen examines this possibility.

Hypothesis Sixteen

Hypothesis Sixteen, in null form, states that grade level is not related significantly to reading program changes for students identified by their teachers as specific reading disabled.

Table 32 tabulates, according to grade and program changes, the

44 students identified by the teachers, using their own criteria, as specific reading disabled. The 44 students do not include students verified by the study as specific reading disabled, even if identified by the teacher as meeting her/his definition, nor does it include students listed by the teachers as meeting the study criteria but not the teachers' own criteria.

TABLE 32

Reading Program Changes for Students Identified as Specific Reading Disabled According to Teacher Criteria but not by the Study Procedure

| Reading Program Changes | Grade 4 | Grade 5 | Grade 6 |
|---|---|---|---|
| No alteration of reading program | 4 | 2 | 10 |
| In-classroom modification of program | 13 | 2 | 3 |
| Out-of-classroom resource room assistance | 4 | 1 | 5 |

N = 44

$X^2$ = 8.75

df(4) = 9.49 at .05 level of significance

A chi square test found an association of 8.75 between grade level and reading program modification for students identified as SRD according to teacher criteria but not by the study procedure (Table 29). An association of 9.49 is required to meet the .05 level of

significance. An association of 8.75 is significant at the .07 level of confidence. Thus, while the association between grade level and reading program is not a significant association for this study, there does appear to be a relationship between grade level and alterations in student reading programs for students identified as SRD according to their teachers' own criteria, with grade 4 teachers presenting a higher percentage of reading program modifications compared to grades 5 and 6 teachers, 81 per cent, 60 per cent and 44 per cent respectively.

In conclusion, the data relative to Question Three, "How are school programs altered for those students identified as specific reading disabled?" were considered through the presentation of three hypotheses. There was found a significant association between grade level and alteration of reading programs when a chi square test was used to examine the information received on the 95 students identified by study procedure or teachers as being SRD. Eighty per cent of the grade four students had their reading programs modified, compared to 68 per cent and 42 per cent for grades five and six respectively.

When a comparison was made between reading program modifications and the method of identification of students as SRD, no significant relationship was found. Of the 44 students identified by the teachers but not the study procedure as being SRD, 28 students, 64 per cent, had had their reading programs modified. Eleven of the 13 students, 85 per cent, identified by the study procedure but not by

teacher criteria as SRD were in specially planned reading programs, while eight of the 14 students, 57 per cent, identified both by the teachers and the study procedure as SRD, received a specialized reading program. When the data, on the 44 students, were examined for grade level association, a positive relationship was found but not high enough to be significant at the .05 level of confidence.

## SUMMARY

Sixteen null hypotheses were employed in the analyses of the data. The five per cent level of confidence was selected to test statistically for significance of results. Chi square tests were employed to check for association between variables presented in each hypothesis. Listed below are the sixteen hypotheses with a statement indicating whether the data supported or rejected each hypothesis.

Hypothesis One states that there is no significant association between the number of university reading courses a teacher has taken and a teacher's identification of specific reading disabled students based on a significant reading retardation with at least average intellectual ability.

Hypothesis One was supported by the data.

Hypothesis Two states that there is no significant association between the number of university special education courses a teacher has taken and a teacher's identification of specific reading disabled students based on a significant reading retardation with at least average intellectual ability.

Hypothesis Two was supported by the data.

Hypothesis Three states that there is no significant association between the number of years a teacher has taught and a teacher's identification of specific reading disabled students based on a significant reading retardation with at least average intellectual ability.

Hypothesis Three was supported by the data.

Hypothesis Four states that there is no significant association between the number of university reading courses a teacher has taken and the use of the economic level of a child's family in categorizing the child as specific reading disabled.

Hypothesis Four was supported by the data.

Hypothesis Five states that there is no significant association between the number of university special education courses a teacher has taken and the use of the economic level of a child's family in categorizing the child as specific reading disabled.

Hypothesis Five was supported by the data.

Hypothesis Six states that there is no significant association between the number of years a teacher has taught and the use of the economic level of a child's family in categorizing the child as specific reading disabled.

Hypothesis Six was supported by the data.

Hypothesis Seven states that there is no significant association between the number of university reading courses a teacher has taken and the categorization of a child as specific reading disabled because

of that child's physical behavior.

Hypothesis Seven was supported by the data.

Hypothesis Eight states that there is no significant association between the number of university special education courses a teacher has taken and the categorization of a child as specific reading disabled because of that child's physical behavior.

Hypothesis Eight was supported by the data.

Hypothesis Nine states that there is no significant association between the number of years a teacher has taught and the categorization of a child as specific reading disabled because of physical behavior.

Hypothesis Nine was supported by the data.

Hypothesis Ten states that there is no significant association between the number of university reading courses a teacher has taken and a teacher's ability to identify specific reading disabled cases.

Hypothesis Ten was supported by the data.

Hypothesis Eleven states that there is no significant association between the number of university special education courses a teacher has taken and a teacher's ability to identify specific reading disabled students.

Hypothesis Eleven was rejected by the data.

Hypothesis Twelve states that there is no significant association between the number of years a teacher has taught and a teacher's ability to identify specific reading disabled cases.

Hypothesis Twelve was supported by the data.

Hypothesis Thirteen states that there is no significant association between the grade level at which the teacher instructs and the accuracy with which a teacher can identify specific reading disabled students.

Hypothesis Thirteen was supported by the data.

Hypothesis Fourteen states that there is no significant association between grade level and alteration of reading program for students identified as SRD.

Hypothesis Fourteen was rejected by the data.

Hypothesis Fifteen states that there is no significant association between reading program changes and whether a student is identified by the teacher as SRD but does not meet the study criteria, or meets the study criteria but is not identified by the teachers as meeting their criteria or is identified both by the teacher and the study procedure as being specific reading disabled.

Hypothesis Fifteen was supported by the data.

Hypothesis Sixteen states that grade level is not related significantly to reading program changes for students identified by their teachers as specific reading disabled.

Hypothesis Sixteen was supported by the data.

Of the sixteen null hypotheses, all but two hypotheses were supported by the data. A significant association was found between teacher training in special education and the ability to identify specific

reading disability cases and between reading program alterations and grade level.

# CHAPTER V

## FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This study was designed to examine the accuracy with which grades four, five and six teachers identify specific reading disabled students. One purpose was to examine the relationship of the teacher characteristics of training and experience with the criteria teachers used in identifying SRD students within the teachers' own classrooms. A supplementary purpose, but one of equal importance, was to check on reading program changes for students identified as SRD.

The first question investigated asked, "Do the criteria that teachers use in identifying specific reading disability cases relate to specific teacher variables?". Each of the 18 teachers of the sample population, through 2 interviews with the Researcher, identified students who met the teacher's criteria for identification of a SRD case.

Teachers were asked to state the student characteristics which led to children being identified by the teachers' definitions as SRD. Nine null hypotheses searched for relationships between the teacher characteristics of number of university courses in reading, number of university courses in special education, years of teaching, and the teachers' use of various student characteristics in identifying students as SRD. Student characteristics included a significant reading retardation with at least average intellectual ability, economic level of

family, and physical behavior.

The second question asked, "Using the operation definition of the study for specific reading disability, how effective are regular classroom reading teachers in identifying the SRD child?".

In the initial interviews, teachers identified students in their reading classes whom the teachers felt met the study definition. To establish the number of students who met the study definition for SRD of being reading retarded by a minimum of two grade levels which was not the results of environment or noted physical or mental defect, including below average intelligence, the Gates-MacGinitie Reading Tests, Canadian Edition, was administered to the total student sample population of 452 students. The records of students scoring two or more years below grade level were examined for possible environment or/and physical problems that could explain the low reading score. Students not excluded at this point were administered an intelligence test. Students scoring low average or better were considered SRD by the study definition.

The students identified by the study procedure were compared with the two lists of students supplied by the teachers when asked to identify SRD students first, by their own criteria and second, by the study definition. Four hypotheses compared the list of students identified by the teachers as meeting the study definition, with teacher characteristics to ascertain the accuracy of the teachers in identifying SRD cases.

The third and final question investigated alterations in reading programs for students identified as specific reading disabled. Forms were completed for each of the 95 students identified as SRD in one or more of three ways: either by teacher criteria; by teachers using the study definition; or by the study procedure. The program changes reported on the 95 forms were tabulated in seven categories.

Three hypotheses were examined when the data were studied in comparing the category in which a student was identified as SRD with the likelihood that a student's reading program would be altered.

Chi square tests were employed to check for relationships in the data collected relative to the three questions.

## FINDINGS

With a total population sample of 452 grades 4, 5 and 6 students, teachers listed 59 students, 40 boys and 19 girls, as being specific reading disabled according to the teachers' own definitions. In classifying these 59 students as SRD, teachers used reading retardation as the prime and often only criterion for identification. Reading retardation with at least average intellectual ability was employed as an identifier by 17 per cent of the teachers. This would appear to be an important finding considering the fact that a discrepancy between reading achievement and intellectual ability is a central criterion in the definition of specific reading disability (Leppmann, 1968; Eisenberg, 1966; Clements, 1966). Chi square tests found no significant relationship between the categorization of a child as SRD, based

on a significant reading retardation with at least average intellectual ability and any of the three teacher variables, courses in special education, courses in the teaching of reading, or years of experience.

Twenty-two per cent of the teachers reported considering the economic level of a student's family as an identifying characteristic and were more likely to refer a child as SRD if he came from a family with a poor economic basis. Chi square tests discovered no significant relationships at the .05 level of confidence between teacher variables and the use of the economic level of the family as an identifier of SRD students. While research evidence supports the association between reading achievement and socioeconomic status, as used by the four teachers in the study, a poor economic family base is a criterion that would eliminate, by definition, the student from being classified as SRD (Barton and Wilder in Spache, 1976; Morris, 1966; Bell, Lewis and Anderson, 1972; Spache, 1976).

Chi square tests discovered no significant relationship at the .05 level of confidence when the student characteristic of physical behavior was compared with the teacher variables of university training in the teaching of reading, university training in special education or years of teaching experience.

One-third of the teachers stated that physical behavior was a factor to be considered when identifying SRD children and they were more likely to refer a child for special reading assistance if disruptive physical behavior was exhibited along with reading retardation.

Thus, the research findings of Foster, Schmidt and Sabatino (1976), and Caplan (1977) which indicated that children exhibiting disruptive behavior are more likely to be referred for remedial reading help, does appear to be somewhat supported by this study's findings.

Considering the fact that physical behavior, other than that directly related to the reading problem, appears not to be correlated with specific reading disability (Lerner, 1976; Spache, 1976; Bryan and Wheeler, 1972), it seems that the use of physical behavior as an identifying criterion may be over-employed by classroom teachers when identifying the specific reading disabled child.

When asked to identify specific reading disabled students in their reading classes according to the teacher's own definition of specific reading disability, 59 students were identified. Of these 59 students, there were 40 boys and 19 girls, giving a ratio of approximately 2 to 1. However, when teachers were asked to identify students according to the study definition which states, "A student whose reading achievement is two or more years below grade level, which is not the result of environment or noted physical or mental defect, including below average intelligence," 42 students were listed including 23 boys and 19 girls. The study through the employment of standardized tests, examination of accumulative records and staff interviews isolated 27 students, 18 boys and 9 girls, that met the criteria of the study definition.

When the data were analyzed according to sex, it was found that

teachers had over-estimated both the number of boys and girls that met the study definition for SRD. However, more girls than boys missed being identified as SRD. Of the 27 students identified as specific reading disabled by the study procedure, teachers had identified 2 of the 9 girls and 8 of the 18 boys as SRD. These findings support the evidence of Critchley (1970a) and Schiffman (cited in Eisenberg, 1966) who state that SRD children are often overlooked by their teachers. Considering the information that one third of the teacher sample considered student physical behavior as an identifying factor of SRD and the findings of Caplan (1977), Caplan and Kinsbourne (1974) that boys' behavior make it more likely that they would be referred for special help seems to relate to the findings of this study where a higher ratio of boys to girls was identified in all three categories.

Nine of the 27 students identified by the study procedure as SRD were girls, giving a ratio of 3 to 1. This ratio of three to one is lower than generally reported in the literature. Critchley (1964) reports that the male:female ratio generally exceeds four to one while Zintz (1977) places the ratio at four to one. Spraings agrees, stating that boys are four or five times more likely to be SRD.

When compared to the total student sample of 225 girls and 227 boys, 4 per cent of the total female sample were identified by the study procedure as SRD, while 7.93 per cent of the total male sample were identified as SRD.

However, there is evidence as found in this study, that teachers do not always recognize the SRD students. Seven of the 9 girls identified by the study procedure as being SRD were not identified by their teachers as SRD while 10 of the 18 boys were not identified by their teachers as SRD. Neither length of teacher experience, nor courses in reading instruction showed a significant relationship with ability to identify SRD cases, although the chi square test did indicate that teachers who had taken special education courses were significantly better at identifying the specific reading disabled student.

Data relative to reading program changes indicated that 80 per cent of grade 4 students who were identified as SRD had their programs altered from the regular classroom program, with the per cent dropping to 68 and 42 for grades 5 and 6 respectively. In-class small group instruction was the most common method of altering the reading program. Thirty-six per cent of the grade 4 SRD students, 29 per cent of grade 5 SRD students and 6 per cent of the grade 6 SRD students were receiving small group in-class instruction. The high rate of in-classroom reading program alterations indicates that the classroom teacher is planning to meet the reading needs of the SRD student. Zintz (1977) and McGinnis (1969-70) believe that the regular classroom teacher is the only hope that the needs of most SRD students will be met.

The percentage of students referred for out-of-classroom reading instruction did not vary between students identified by the

teachers using their own criteria and those identified by the study procedure. Twenty three per cent of both groups were receiving specialized out-of-classroom instruction. Students, identified both by teacher criteria and study procedure as SRD, totalled 14 subjects, 3 in grade 4, 3 in grade 5 and 8 in grade 6. Six of the 8, 75 per cent, grade 6 students had not had their reading programs altered. One of the students at each grade level was attending an in-class small group program, while the other students were receiving out-of-classroom resource room instruction. A chi square test showed a significant association between grade level and alteration of reading programs. Grade four students identified as SRD are more likely to have their reading programs altered than are SRD students in grade six. Even students identified by the study procedure, but not previously listed by teachers as being specific reading disabled, exhibited a high percentage of reading program alterations with 8 of the 13 subjects receiving small group in-class instruction and three subjects receiving out-of-class specialized teaching instruction. Students listed by their teachers as SRD and meeting the criteria of the study as specific reading disabled students generally were in specialized programs at the grade four and five levels but only two of the eight grade six students in the sample were receiving any special programming.

## CONCLUSIONS

The analyses of the data pertaining to teacher criteria for the identification of SRD discovered little agreement on the criteria to be

employed. Only one criterion, actual reading retardation, was reported by all eighteen teachers. However, even the most severely reading retarded were not identified by all teachers as SRD. Teacher definitions varied so much that none of the student variables showed a significant relationship with any of the teacher variables.

Teachers appear to be poor identifiers of the SRD student. Of the 27 cases identified by the study as meeting the criteria of SRD, teachers identified 10 students. More girls than boys were missed. While one-third of the 27 students were girls, teachers had identified 2 as being SRD, but identified 8 of the 18 boys as SRD.

Evidence was found to support the conclusion that the lower the grade, the more likely a child's reading program will be modified. While 81 per cent of the students meeting the grade 4 teachers' criteria for SRD were taking a modified reading program, by grade 6 the per cent of students in a modified reading program had dropped to 44 per cent.

## IMPLICATIONS

The findings indicating that teacher criteria for the identification of specific reading disabled students vary substantially from teacher to teacher combined with the low rate of identification of actual SRD cases, has several implications for education.

Three implications appear to be applicable at the university level. As found in the study, the number of special education courses a teacher has taken is significantly related to a teacher's ability to

identify specific reading disability cases. However, only 6 of the 18 teachers forming the sample had any university training in special education. The inclusion of special education courses in teacher training programs for students preparing to teach reading at the upper elementary level is suggested.

A second implication, for university faculties of education, is suggested by the lack of a significant association between the number of reading courses a teacher has taken and accuracy of identification of SRD students. There appears to be a need to review the number of reading courses required before a teacher would be considered adequately trained in the instruction of reading, but possibly of more importance, considering the findings, is the applicability of the courses now offered. It would appear that teachers may need substantial help in translating theory into practice. Faculties of education would appear to be logical sources of assistance.

The translation of theory into practice suggests a third implication for university training programs for reading teachers. Of 44 students who teachers had identified as having reading problems, 18 students had not received any alterations in their reading programs. It may be that teacher training programs need to develop more fully the skills relative to reading instruction for teachers in training and thus increase the likelihood that a higher percentage of SRD students will be supplied reading programs that will more closely meet their particular needs.

In addition to the three implications for personnel working at the university level, there appears to be at least three implications for school district personnel. Considering the information that 50 per cent of the teacher sample had taken fewer than three courses in the teaching of reading, combined with the finding of the importance of special education courses in the identification of SRD students, there appears to be an implication here for district hiring practices. In hiring teachers of reading, a district board may well wish to consider both the number of courses in reading and the number of courses in special education as two important criteria in the employment of teachers.

A second implication for school district personnel comes from the finding of the study that teachers do not accurately identify SRD cases. To assist teachers in the identification of SRD students, a school district's board may wish to implement a district-wide testing program. While testing would not need to occur each year, it would be important that any district testing be complemented by specialized personnel who would be responsible for the final identification of SRD students and for assisting in the planning of modified reading programs, both for within-the-classroom instruction and resource room instruction.

A third implication applicable at the school district level is suggested by the information that reading program modification for students with reading problems varied from a low of 42 per cent at

grade six to a high of 80 per cent at grade four. These facts seem to suggest a need for in-service programs for practicing teachers. The same district personnel who would be responsible for final identification of SRD students could be charged with the responsibility of developing an in-service program for the classroom teachers of reading.

## RECOMMENDATIONS

The findings of the present study have provided answers to a limited number of questions. In addition, the results have presented new avenues of research and called attention to a number of questions related to the identification of reading disabled children.

Further research might consider the variables that could account for the percentage of SRD cases identified at the grade four level being less than one-half the percentage of cases identified at the grade five level and at the grade six level. Research could investigate the possibility that the lower percentage of actual SRD cases at the grade four level is related to the higher per cent of modification of reading programs at that level, or research could check the possibility that the lower percentage of identified cases is related to a number of variables, including the standardized reading test used, the narrower range of reading levels because of the lower grade, or unidentified teacher variables.

This study did not consider the role of the school administrator in the identification process or in the modification of school programs

to meet the needs of particular children. Research could be structured that would investigate the possibility that the rate of identification of specific reading disabled cases and consequently the alterations of reading programs is affected by the view which the school administrator holds regarding the concept of specific reading disability.

In this study, it was found that 61 per cent of the students identified as having reading problems had their reading programs modified. Further research is needed to identify the variables that lead to some children being placed in a modified reading program while other children who appear to have some of the same needs are not placed in modified programs.

There was a significant drop in modification of reading programs for SRD children between grade four and grade six. Additional investigation is needed to identify the causes of this decrease and to substantiate whether the decrease in programming for individual needs extends into the junior high school.

In this study, the contents of special education courses that the teachers had taken were not identified. Research might examine in detail special education courses in order to identify the characteristics of courses that lead to improved teacher accuracy in identification of SRD cases.

The foregoing, and other problems such as the identification and programming of SRD students relative to emotional and social

development should be investigated if educators are to maximize the potential of SRD students. Continued research into the effects of such factors as a child's motivation toward reading, classroom environment and teacher expectation for the SRD child must continue if the reading potential of every specific reading disabled child is to be achieved.

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# APPENDICES

# APPENDIX A

## THESIS RESEARCH: Haze Wescott

Topic:

Teacher Identification of Specific Reading Disabled Children.

Specific Questions:

1. What criteria do teachers use to identify "specific reading disability" cases in their classrooms?

2. Using the operational definition of the study, how effective are regular classroom reading teachers in identifying the specific reading disabled child?

3. What characteristics do children display that lead to their being identified as "specific reading disabled?"

4. How are school programs altered for those students identified as "specific reading disabled?"

Sample:

1. Approximately 500 students, 18 teachers evenly divided among grades 4, 5 and 6.

2. 10 Classrooms - County of Lethbridge
   8 Classrooms - Pincher Creek School Division.

Procedure:

1. Classroom reading teachers will be asked to identify, using their own criteria, specific reading disabled children.

2. Using the study definition, teachers will be asked to identify students in their reading programs who meet the criteria of the definition.

3. Total student population will be given the:

   Canadian Gates-MacGinitie Reading Tests

4. Researcher will exclude those students not meeting the criteria of the study definition.

5. Remaining students will be given either the Canadian Lorge Thorndike Intelligence Tests or/and WISC-R.

Statistical Analysis:

Statistical tests will be employed to check several specific null hypotheses including:

1. The relationship between teacher experience and accuracy of identification of specific reading disabled students.

2. The relationship between teacher education and accuracy of identification of specific reading disabled students.

# APPENDIX B

## INFORMATION SHEET: SCHOOL

1. School _____

2. Principal _____

3. Phone Number _____

4. Number of Professional Staff _____

5. Number of: Grade Four Classes _____
   Grade Five Classes _____
   Grade Six Classes _____

6. Total Number of Students In: Grade Four _____
   Grade Five _____
   Grade Six _____

7. Additional in-school personnel available to assist the classroom teacher:

| Title | Role |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

8. Additional district personnel available to assist the classroom teacher:

| Title | Role |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

# APPENDIX C

## INFORMATION SHEET: TEACHER

1. Name _____

2. School _____ _____ Grade _____ M _____ F

3. Years of teaching: _____

4. University courses in the teaching of reading: _____

_____

5. University Special Education courses: _____

_____

6. Years of University Education _____

7. Degrees _____ Majors _____ Minors _____

8. Using your own criteria, please identify "specific reading disability" cases in your reading class.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

# APPENDIX D

## CHECKLIST: STUDENT

In an interview with the teacher, the Researcher will complete a checklist for each student identified, according to the teacher's criteria, as "specific reading disabled."

Teacher _____

Student _____

Student Characteristics:

A. Reading retardation/average or better intellectual ability. ☐

B. Economic conditions. ☐

C. School attendance. ☐

D. Behavioral problems. ☐

E. Hearing impaired. ☐

F. Vision impaired. ☐

G. Other: _____

_____

_____

Definition:

_____

_____

_____

_____

_____

# APPENDIX E

## IDENTIFICATION: STUDENTS

**For this study "specific reading disability" is used to describe:**

A STUDENT WHOSE READING ACHIEVEMENT IS TWO OR MORE YEARS BELOW GRADE LEVEL, WHICH IS NOT THE RESULT OF ENVIRONMENT OR NOTED PHYSICAL OR MENTAL DEFECT, INCLUDING BELOW AVERAGE INTELLIGENCE.

**Please list below students in your reading classes who you believe fit the above definition.**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

# APPENDIX F

## EXCLUSION: STUDENT

This form is to be completed by the Researcher for each student identified in the initial screening as a possible "specific reading disability" case.

Name _____

| | | Yes | No |
|---|---|---|---|
| A. | English is not the predominant language spoken in the home. | ☐ | ☐ |
| B. | This student has been absent from school more than 20 per cent of the time over the last two years. | ☐ | ☐ |
| C. | This student has attended more than three different schools in the last two years and the family breadwinnner has been unemployed for more than a week in the last year. | ☐ | ☐ |
| D. | The student exhibits a major behavioral problem that is likely interfering with reading achievement. | ☐ | ☐ |
| E. | The student has an uncorrected serious hearing or vision loss. | ☐ | ☐ |

E. (continued)

F. Notes:

Intelligence Quotient Scores:

Test _____ Date: _____

Score _____

# APPENDIX G

## READING RESEARCH

Dear Parent:

A doctoral study is being conducted through the University of Alberta, related to the identification of students with reading difficulties. Four hundred and fifty-two students in southern Alberta form part of the study. Your child has been selected to participate in this study. The study takes approximately two hours of your child's time. During that time, each child will meet with the researcher and complete one or two tests, including an intelligence test. All information from testing sessions is kept confidential.

If you would like more information about the study, or disagree with your child's participation in the study, please phone your child's Principal.

# APPENDIX H

## PROGRAM: STUDENT

This form is to be completed by the teacher for each student identified as reading disabled.

Teacher _____ Grade _____

Please indicate the reading program changes that have occurred for

_____

| | | Yes | No |
|---|---|---|---|
| A. | Has this student's reading program been changed? | ☐ | ☐ |
| B. | Extension of basal program | ☐ | ☐ |

If yes, in what way has the program been extended?

_____

_____

| | | | |
|---|---|---|---|
| C. | Individual regular classroom instruction | ☐ | ☐ |

Amount of time per week _____

| | | | |
|---|---|---|---|
| D. | Small group regular classroom instruction | ☐ | ☐ |

Amount of time per week _____

| | | | |
|---|---|---|---|
| E. | Referral to a specialized teacher for reading instruction | ☐ | ☐ |

Amount of time per week _____

F. Other changes:

_____

_____

_____

_____

## RESULTS: GATES-MacGINITIE READING TESTS

| Grade | Range | | | | |
|---|---|---|---|---|---|
| | 2 or More Years Below Grade Level | 1 Year to 23 Mos. Below Grade Level | 11 Mos. Above or Below Grade Level | 1 Year to 23 Mos. Above Grade Level | 2 or More Years Above Grade Level |
| 4 | 12 | 20 | 76 | 24 | 24 |
| 5 | 21 | 26 | 49 | 20 | 26 |
| 6 | 29 | 32 | 41 | 27 | 25 |
| Total | 62 | 78 | 166 | 71 | 75 |

N = 452

# APPENDIX J

## RESULTS: Canadian Lorge-Thorndike Intelligence Tests and Wechsler Intelligence Scale for Children - Revised

| Grade 4 | | Grade 5 | | Grade 6 | |
|---|---|---|---|---|---|
| L-T | WISC-R | L-T | WISC-R | L-T | WISC-R |
| | 56 | 72 | 76 | | 60 |
| | | | 80 | | 70 |
| | | | | 82 | 78 |
| 73 | 83 | 82 | 87 | 75 | 80 |
| 76 | 84 | | 88 | 80 | 80 |
| | 86 | 88 | 92 | 74 | 81 |
| | | 93 | | 78 | 81 |
| | | 94 | | | |
| 85 | 92 | 82 | 94 | | 82 |
| 83 | 93 | 88 | 95 | | 84 |
| 82 | 96 | 85 | 96 | 69 | 85 |
| | 101 | 81 | 97 | 78 | 88 |
| | | | 97 | 81 | 88 |
| | | | | 87 | 92 |
| | | 81 | 102 | | 92 |
| | | | 102 | | 92 |
| | | | | 93 | |
| | | | | 94 | |
| | | | | 95 | |
| | | 92 | 104 | 88 | 99 |
| | | | | 90 | 100 |
| | | | | | 100 |
| | | | | | 101 |
| | | | | 85 | 105 |
| | | | | | 123 |

N = 47